

# Real-time Trade Matching (RTTM) for NSCC-Eligible Fixed Income Securities: Business Requirements

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*The Depository Trust &  
Clearing Corporation*

Government Securities Clearing Corporation  
National Securities Clearing Corporation

**Business Requirements for Real-time Trade  
Matching (RTTM) of NSCC-Eligible Fixed  
Income Securities**

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# 1. Executive Summary

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## 1.1. RTTM Introduction

Real-time Trade Matching (RTTM) was designed and implemented by Government Securities Clearing Corporation (GSCC) for Government securities in the 4<sup>th</sup> Quarter of 2000 with a vision of using that platform as a model for providing standardized services for other fixed income securities moving forward. Once RTTM was deployed for Government securities, GSCC and the MBS Clearing Corporation (MBSCC) worked in tandem to adapt the government model to support the requirements of mortgage-backed securities. This effort has been wholly successful, and RTTM for mortgage-backed securities is slated for implementation later this year.

Development of services for the fixed income products eligible for National Securities Clearing Corporation (NSCC) services<sup>1</sup> was the next logical extension of RTTM. As such, a collaborative effort among GSCC, NSCC and The Depository Trust & Clearing Corporation (DTCC) was launched last year to capitalize on the synergistic opportunities afforded by the newly integrated clearing organizations.<sup>2</sup> (GSCC, MBSCC, and NSCC are subsidiaries of DTCC.)

Concomitant with the expansion of RTTM, DTCC has been working to formulate and implement solutions for a number of challenges facing the industry. Some of these challenges are:

- The need for industry participants to build and maintain multiple messaging formats and communications links with various entities for their fixed income processing;
- The move towards a shortened settlement cycle;
- The unacceptable risks associated with end-of-day trade submission;
- The need to comply with real-time regulatory price reporting in anticipation of transparency requirements; and
- Inefficiencies stemming from the lack of interoperability among the multiple buy-side matching utilities.

In order to address these challenges, DTCC is expanding its common facilities to support establishing a centralized “Hub” that would serve as a single point of entry for all fixed income trades. Industry participants would forward all of their fixed income trades directly to the Hub via a single communications pipeline. The Hub would then route the trades to their appropriate destination for processing – either to one of the various product-specific matching facilities (including institutional matching utilities) or to regulatory agencies. The existing RTTM infrastructure and processing capabilities will be utilized to provide this critical functionality. By leveraging RTTM, development and operating costs associated with providing a centralized Hub will be reduced, as will the time to market.

<sup>1</sup> Fixed income products currently eligible for NSCC services include corporate and municipal bonds and Unit Investment Trusts (UITs).

<sup>2</sup> It should be noted that the processing features described in this document are subject to a rules change request being made by NSCC, and the subsequent approval of the rules change by the Securities and Exchange Commission (SEC). It should be further noted that this document was prepared by GSCC, NSCC, and DTCC and does not necessarily represent the policies of any other organization.

In addition to the synergistic benefits afforded by a single pipeline and a centralized messaging Hub, RTTM will reduce the risks inherent in trade processing because trades will be captured and matched as close to the time of trade execution as possible, and then staged for settlement. If trades were submitted to RTTM and safe-stored by the clearing corporation as they were executed, recoverability in the event of a disaster (or if a firm were to experience operating difficulties) would be more certain than in an end-of-day reporting environment. Additionally, the risks associated with unmatched trades will be mitigated through the dissemination of real-time trade information and through the implementation of sophisticated Web-based reconciliation tools. With the addition of NSCC fixed income products to RTTM, the same set of trade matching capabilities will be available across a broader range of fixed income products. Further, the industry will be provided with trade matching capabilities consistent with those developed for the government market and the mortgage-backed market.

In the Business Overview for RTTM for NSCC-Eligible Fixed Income Securities (issued in August 2001), preliminary plans for providing a real-time fixed income matching system were communicated to participants. This document further delineates concepts introduced in the Business Overview and imparts a more comprehensive description of the business requirements and new functionality associated with the implementation of RTTM for corporate and municipal bonds and UITs in 2003. It is the intent of this document to provide significant details on RTTM and to enable participants to more clearly understand the process in order to make plans internally to align their development to the timetable provided. It should also provide the necessary information to facilitate budgeting and resource allocation.

## 1.2. Service Overview

GSCC and DTCC — working in conjunction with the Securities Industry Association (SIA), The Bond Market Association (TBMA), the Regional Municipal Operations Association (RMOA), the Cashier's Association of Wall Street, Inc. and a DTCC/RTTM User Group<sup>3</sup> — have identified the essential service features for RTTM (some of which were noted in the Introduction). The following bullet points provide an overview of these new service features:

- **A Single Pipeline for Fixed Income**
  - The primary building block for establishing real-time processing capabilities and facilitating straight-through-processing is the use of a single pipeline with one communications link for all fixed income products. RTTM will capitalize on DTCC's already existing Access Network to provide this functionality.
  - As noted in the Introduction, DTCC is working towards establishing its existing message router capability to serve as the “Hub” for the fixed income markets. The Hub will facilitate routing information received via the single pipeline to the appropriate destination (i.e., fixed income clearing corporation, regulator or other applicable destinations).

<sup>3</sup> The DTCC/RTTM User Group is composed of subject matter experts that represent a cross-section of NSCC fixed income market participants.

Figure 1 illustrates the message router and Hub concepts.

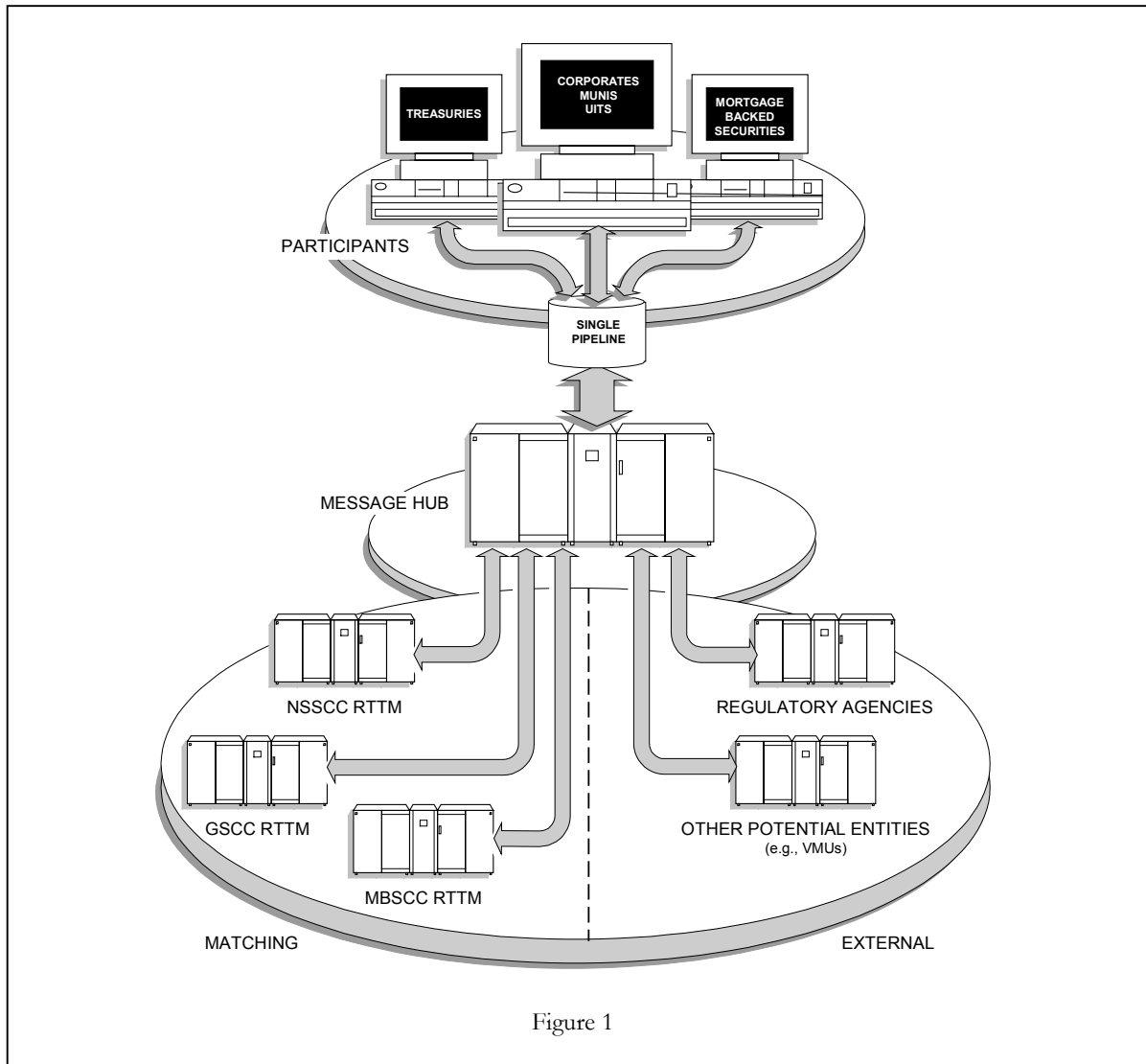


Figure 1

- **Standardized Messaging**

- A second building block for the establishment of RTTM for fixed income products is the use of standardized message formats. As part of its introduction of RTTM services in 2000, GSCC implemented ISO (International Organization for Standardization) 15022 formats for all inbound and outbound interactive messages. These message formats are also being implemented later this year for mortgage-backed securities processed through MBSCC, and will further be employed by RTTM for NSCC-eligible fixed income securities in 2003, as more fully described in this document. These messages are essentially the same for all fixed income products, establishing a standard format and processing approach for all fixed income matching.

- **Real-time Trade Input**

In order to support the traditional method of two-party matching, as well as to facilitate the emergence of new trading platforms, RTTM will support multiple types of submission and matching:

- Bilateral submission where comparison is achieved upon the matching of relevant trade details submitted by two parties.
- RTTM will also facilitate two forms of unilateral submission of trades by an approved submitter: Demand and Locked-in. For such unilateral trade submission, RTTM still provides the counterparty with the ability to submit trade details to RTTM for its own internal reconciliation purposes.
- Participants will have the ability to send DK messages to their counterparties through RTTM (or to enter DKs directly via web screen) if they don't know (DK) a trade that has been submitted against them.

- **Centralized Trade Matching System**<sup>4</sup>

- RTTM will continue to support end-of-day enhanced comparison and, additionally, will further bolster matching by utilizing its proven procedures for enhanced intraday matching (employing intraday money tolerances, etc.).
- The unilateral submission modes afforded by RTTM allow enhanced processing for existing trade types (i.e., Syndicate, New York Stock Exchange ["NYSE"] Automated Bond System ["ABS"] trades and Qualified Service Representative ["QSR"] trades) without adversely changing the existing business requirements associated with each of those submission types. In other words, counterparties to such trades are bound in the same way that they are today; however, RTTM provides sophisticated notification and reconciliation processes to accommodate rapid error identification and correction in an effort to mitigate risk.

- **Real-time Output/Results**

- Outbound Interactive Messaging will be made available to all participants upon RTTM implementation. These messages will also use standardized ISO 15022 formats.

<sup>4</sup> In connection with the new modes of matching in RTTM being provided to support reconciliation, the following terms are used consistently throughout this document as defined below:

**Compared:** For Bilateral submissions, the trade is considered compared when the trade details submitted by both counterparties are matched and a report evidencing the terms of the trades is issued by the clearing corporation. For Locked-in and Demand submissions, the trades are already compared upon receipt by RTTM.  
**Matched:** A technical/operational feature of the RTTM system where a trade is either matched to trade details submitted by the counterparty (regardless of submission type) or it is automatically marked as matched within RTTM at a specified point in time (depending upon the submission type of the trade).

- As a result of the RTTM implementation, there will be some changes made to the reports that participants receive intraday which will now be produced by RTTM. Current end-of day reports will continue to be produced in the existing format by FITS, and settlement information will continue to be provided by NSCC/DTCC. It should be noted that providing reports to participants in existing formats will be done on an interim basis. FITS will eventually be eliminated and all reports will be generated by RTTM.
- RTTM will be constructed to accommodate the processing features associated with the current T+3 settlement environment. Further, RTTM's design for fixed income products will fully support the new processing features that will be introduced with the redesign of the Continuous Net Settlement (CNS) system as well as to support the anticipated shift to accelerated settlement. It is not anticipated at this time that processing features being introduced in conjunction with RTTM will affect rules governing the settlement guarantee of trades.
- Participants will have improved screen-processing capabilities through a Web User Interface. Web functionality will include trade entry and trade update, as well as sophisticated query tools to view real-time status, to enable a participant to view activity submitted against it, and to identify and resolve exceptions.
- Participants may submit a single trade message to RTTM for both matching and real-time reporting of their street-side bond trades to comply with applicable price transparency and surveillance requirements.<sup>5</sup> This eliminates the need for participants to duplicate trade reporting through separate input streams, does away with the need to support multiple message formats and improves processing efficiencies. It further provides a single pipeline for reporting "customer trades" to regulators as well as street-side transactions.

### 1.3. Service Benefits

By deploying a single RTTM system for all fixed income processing, a number of benefits will be achieved for our collective participants. These include:

- Providing firms the ability to compare trades shortly after execution and achieve 100% matching on Trade Date;
- Mitigating risks associated with uncomparing trades;
- Providing real-time monitoring and exception processing tools;
- Reducing participants' telecommunications and linkage costs, as well as the costs for ongoing technical support of the various message formats and systems interfaces with multiple clearing corporations and regulatory agencies;
- Enhancing recoverability in a disaster situation, or in the event a participant is experiencing technical problems, by facilitating submission of trades to RTTM and their

<sup>5</sup> The Municipal Securities Rulemaking Board (MSRB) and the National Association of Securities Dealers (NASD) have agreed, in principle, and support the single pipeline approach. The MSRB has formally announced its intention to achieve real-time price reporting of municipal securities utilizing RTTM in mid-2004.

safe-store by the Clearing Corporation at the time the trade is executed, rather than at the end of the day;

- Providing participants with the ability to effect an industry shift to a shortened settlement cycle;
- Providing an efficient solution for compliance with fixed income regulatory reporting requirements;
- Helping to achieve processing synergies across clearing corporations, by being flexibly designed to accommodate other fixed income products moving forward (thereby reducing the costs incurred by participants as a result of maintaining separate systems); and
- Facilitating portability of personnel within participants' organizations through standardization of procedures and terminology across fixed income products and within DTCC.

## 1.4. Implementation Strategy

A major goal of the RTTM implementation will be to provide new and enhanced functionality and services simply, and with minimal disruption to participants. Our strategy will focus on initially implementing RTTM services so that changes are incorporated seamlessly, with as much processing transparency as possible. This will allow participants to migrate to RTTM and to test new features while maintaining their existing batch and multi-batch capabilities, allowing the RTTM implementation to be accomplished on a participant-by-participant basis, rather than requiring a "big bang" implementation.

**Despite the fact that the RTTM implementation strategy supports participants moving to RTTM at their own pace, it is anticipated that regulatory reporting requirements will limit the amount of time participants have to move away from batch processing. Furthermore, future enhancements and new functionality will be applied only to RTTM and not to the existing Fixed Income Transaction System ("FITS") or its interfaces, as FITS will ultimately be eliminated.**

The most relevant implementation dates are as follows:

### 1<sup>st</sup> Quarter 2003

- Publication of Interactive Messaging Specifications
- Changes to FITS in Preparation for RTTM (*see details in Appendix A*)

### 2<sup>nd</sup> Quarter 2003

- Publication of Scripts for Participant Testing

### 3<sup>rd</sup> Quarter 2003

- Participant Testing of Interactive Messaging
- Publication of User Guides

#### **4<sup>th</sup> Quarter 2003**

- Implementation of RTTM
- Implementation of RTTM Web User Interface
- Implementation of Interactive Messaging for “Ready” Participants

#### **2<sup>nd</sup> Quarter 2004**

- Interface with the regulators

## **1.5. Contact Information**

We encourage participants to comment on any and all aspects. Comments or questions should be directed to:

John D. Fitzgerald  
Managing Director, DTCC  
(212) 855-5679

Ed Fanning  
Vice President, DTCC  
(212) 855-7623

## 2. Single Pipeline for RTTM

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A fundamental building block for the establishment of the centralized fixed income matching facility is the use of a single pipeline for expanded access to the services offered by the various clearing corporations using a single communications link. The Access Network will provide this link. In addition to the approach described below, we are also investigating the potential use of the public Internet moving forward.

The Access Network was designed jointly by GSCC and NSCC. Briefly summarized, it provides screen access, bulk file transfer and a facility for Interactive Messaging through a full, secure, standard TCP/IP communications connection. Using the Access Network, participants have the ability to gain access to a number of GSCC, MBSCC and NSCC applications through a single communications network. This allows participants to connect multiple workstations throughout their organizations, providing simultaneous access to various services by a number of users in different locations.

For the fixed income products included within the scope of this project (i.e., for NSCC-eligible fixed income securities), the Access Network will support:

- Interactive Messaging
- RTTM's Web User Interface
- Access to current and historical reports, both intraday and end-of-day, via RTTM's Report Center Facility
- Dial back-up capabilities
- Batch file transmission – Computer-to-Computer File Transfer Service (FTS) or PC Web Direct
- The major communication vehicle for sending trade information to regulatory bodies for real-time price transparency

Participants may connect to the Access Network using their own equipment through their choice of connections. Most alternatives are supported, including dial-up, 56KB, fractional and full T1, frame relay and ISDN.

Participants will be required to use the Access Network (or potentially the public Internet access) to take advantage of the RTTM Web-based User Interface. This interface is an on-line facility that will enable participants to enter and update all trade-related activity as well as to obtain real-time status information for all transactions received by the RTTM system. (Refer to the "Web User Interface" section of this document for additional information.)

## 3. Introduction to Interactive Messaging

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A second building block for the establishment of RTTM for fixed income products is the use of standardized message formats. GSCC implemented the ISO (International Organization for Standardization) 15022 formats for all trade-related inbound and outbound interactive messages in 2000. These message formats are also being implemented later this year for mortgage-backed securities processed through MBSCC, and will further be employed by RTTM for NSCC-eligible fixed income securities.

ISO formats contain sequences of data tags and data fields to maximize the flexibility and practical application of the messages moving forward. ISO 15022 SWIFT message formats are constructed using a modular methodology based on the premise that information can be identified and programmed once, then reused whenever needed. Users will therefore be able to easily incorporate RTTM-defined enhancements to messages if the collective need is demonstrated.

Using Interactive Messaging for NSCC-eligible securities, participants have the ability to submit trade input to RTTM intraday as trades are executed and receive immediate notification of whether trades have been accepted or rejected by RTTM. Counterparties receive advisories for all transactions submitted against them. The submitting member and its counterparty are also provided with up-to-the-minute trade status information as transactions are processed by RTTM (for example, a message will be sent when a trade is matched, canceled or modified).

RTTM utilizes the MQ Series product from IBM to support Interactive Messaging. This product implements a reliable message exchange protocol that addresses sequence numbers, connection recovery and other messaging-related issues. The use of this product precludes the traditional requirement of developing a custom message exchange protocol for each new clearing corporation interface. MQ Series is available for the majority, if not all, of the systems platforms in use at participants' data-centers (including MVS, VMS, most common versions of Unix, and NT). Many participants already use this product either in-house, or to connect to other services.

### 3.1. Message Type Overview

A high-level overview of the message types that will be used in conjunction with RTTM processing for NSCC-eligible fixed income securities is provided to impart a general understanding of how messaging will function. Complete Messaging Specifications are being prepared and will be distributed to all participants in the 1st Quarter of 2003.

Four interactive message types will be implemented in conjunction with RTTM services. These are:

- MT515 – Participant Trade Input into RTTM
- MT509 – Status Messages sent by RTTM to Participants
- MT518 – Advisories and Requests for Action sent by RTTM to Participants
- MT599 – Administrative Messages sent by RTTM to Participants

Each of these message types is described briefly below, along with a list of associated processing events. It should be noted that these are the events that have been identified to date. There may be additional events as we progress with our formulation of the messaging specifications.

### **3.1.1. MT515**

The MT515 is specified by SWIFT as a Client Confirmation of Purchase or Sale. It can also serve as a binding electronic contract. For the purposes of RTTM, the MT515 message may be used by all participants, including Demand and Locked-in submitters (such as Syndicate Managers, Qualified Special Representatives – “QSRs” –and the “NYSE”), to submit the following transaction types to RTTM:

- Instruct (Trade)
- Cancel
- Modify
- Reversal
- DK

Refer to the RTTM Input section of this document for additional details regarding the Record Types listed above.

### **3.1.2. MT509**

The MT509 is specified by SWIFT as a Trade Status Message. It is used by RTTM to convey status changes to each trade in RTTM. This message does not contain full trade details, but rather provides the trade status along with a full set of reference numbers to enable a participant to identify the record submitted. This message is sent to convey the events to affected participants including, but not limited to, the following:

- Input Accepted (Instruct, Cancel, Modify, Reversal and DK)
- Input Rejected (Instruct, Cancel, Modify, Reversal and DK)
- Input Processed (Cancel, Modify, and DK)
- Trade (Reversal) Matched
- Trade (Reversal) Matched through Par Summarization
- Deletion of an Unmatched Trade (Reversal)
- Notice of a Trade (Reversal) Canceled due to DK (to the trade submitter)

### **3.1.3. MT518**

The SWIFT MT518 is specified by SWIFT as a Market Side Securities Trade Confirmation. It is used by RTTM to convey full trade details to the transaction counterparty of Instruct, Cancel, Modify, Reversal and DK input messages submitted against it. This functions essentially as an advisory and also as a request for action on the part of the recipient.

MT518's also serve to provide participants information regarding their own trade records, in addition to Locked-in and Demand trades created within RTTM on a participant's behalf. It should be noted that where an entry or change has been made to a participant's trade in RTTM, an MT518 message will be sent to that participant which details the current trade record as it exists in the system. The MT518 message is sent to convey the following events to participants:

#### **3.1.3.1. MT518's Reflecting Contraparty Trade (Reversal) Submissions**

- Match Request
- Match Request Cancel (to a participant when its contraparty or RTTM cancels its trade pre-matching)
- Match Request Modify (to a participant when its contraparty has modified its trade pre-matching)

#### **3.1.3.2. MT518's Reflecting Events Based on the Receiving Participant's Trade (Reversal)**

- Screen Input Trade Replay (to a participant when an action, not sourced in the participant's system is performed on a trade directly in the RTTM system — e.g., a Trade, Modification or Cancel is entered manually to RTTM.)
- Trade Matched with Modifications (to reflect changes made to trades by RTTM during intraday or end-of-day Enhanced Matching processes)
- DK Advice
- DK Remove Advice
- Recalculation of When-Issued Trade
- Post Match Trade Modification (where a participant modifies trade data post matching — i.e., the participant-defined unique trade identifier, or x-ref)

#### **3.1.3.3. MT518's Reflecting Locked-in and Demand Trade (Reversal) Information**

- Locked-in Trade Advice

#### **3.1.4. MT599**

The MT599 message is a free-format SWIFT message which is utilized by RTTM to communicate administrative messages to participants (and their service providers, where appropriate). These messages will be used to notify participants regarding start- and end-of-day processing, as well as cutoffs for end-of-day submission. It should be noted that the MT599 message is the only “non-ISO15022” message type used by RTTM.

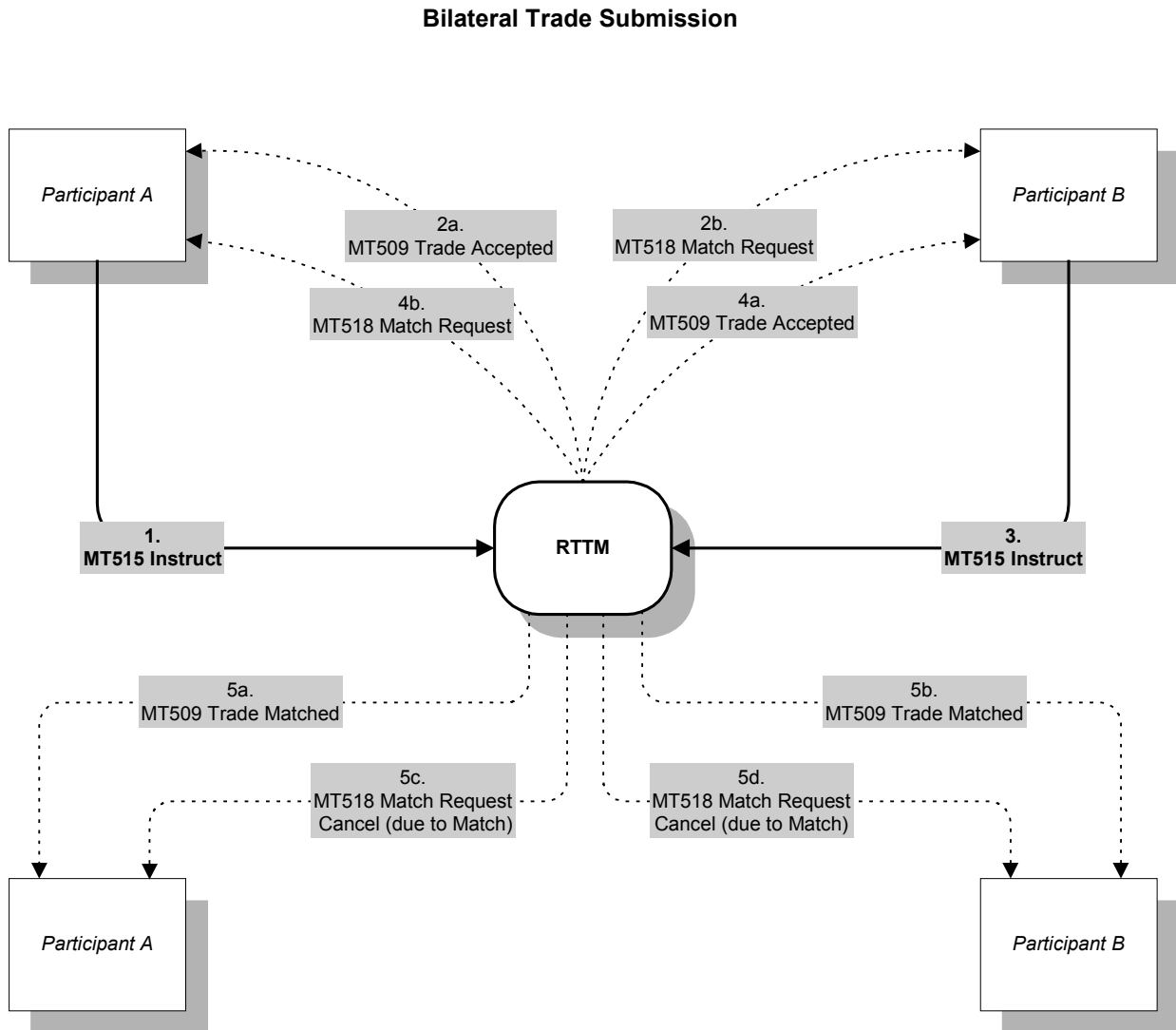
**One start-of-day message will be sent by RTTM for each business day that will signal to participants that the RTTM system is available for submission of trades to be included in that day's matching process.**

**Two matching-related end-of-day messages will be sent to participants nightly:**

- The first end-of-day message will indicate to participants that RTTM will not accept any more trade submissions for inclusion in that day's matching process.
- The second end-of-day message will indicate to participants that RTTM has completed matching processing, and that no more interactive matching messages will be sent by RTTM for that business day.

### 3.2. Message Flow Overview

The following illustration depicts the most basic message flow for Interactive Messaging – a participant-to-participant trade that is Bilaterally matched with no exception processing.



Refer to the next page for a description of each message in this flow.

1. MT515 Instruct - This input message conveys the transaction data submitted by Participant A for matching within RTTM.
- 2a. MT509 Trade Accepted - This output message is sent to Participant A acknowledging that its Instruct/Trade has been accepted by RTTM and is awaiting further processing. This message also provides the RTTM-assigned Transaction ID.
- 2b. MT518 Match Request - Once Participant A's input is accepted by RTTM, this output message is sent to the transaction counterparty, Participant B, containing full trade details as entered by Participant A. This message instructs Participant B that a transaction has been submitted against it for which Participant B must submit a corresponding MT515 Instruct to effect a match.
3. MT515 Instruct - This input message conveys the transaction data submitted by Participant B for matching within RTTM.
- 4a. MT509 Trade Accepted - This output message is sent to Participant B acknowledging that its Instruct/Trade has been accepted by RTTM and is awaiting further processing. This message also provides the RTTM-assigned Transaction ID.
- 4b. MT518 Match Request - Once Participant B's input is accepted by RTTM, this output message is sent to the transaction counterparty, Participant A, containing full trade details as entered by Participant B. This message instructs Participant A that a transaction has been submitted against it for which Participant A must submit a corresponding MT515 Instruct to effect a match.
- 5a. MT509 Trade Matched - This output message is sent to Participant A informing it that the data submitted on its MT515 Instruct message has been matched to the data submitted on Participant B's MT515 Instruct message, and the trade is matched.
- 5b. MT509 Trade Matched - This output message is sent to Participant B informing it that the data submitted on its MT515 Instruct message has been matched to the data submitted on Participant A's MT515 Instruct message, and the trade is matched.
- 5c. MT518 Match Request Cancel (due to match) - This output message is sent to Participant A to cancel the MT518 Matching Request message previously sent (4b) by RTTM, as the trade is now matched.
- 5d. MT518 Match Request Cancel (due to match) - This output message is sent to Participant B to cancel the MT518 Matching Request message previously sent (2b) by RTTM, as the trade is now matched.

## 4. RTTM Input

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### 4.1. Product Types

RTTM will support all products currently processed through NSCC's Fixed Income Transaction System ("FITS"). These include:

- Corporate Bonds (NYSE, Amex and OTC)
- Municipal Bonds
- Unit Investment Trusts – "UITs"

Once RTTM is implemented, the expansion of the service to include other fixed income products will be considered.

### 4.2. Trade Types

RTTM will support the following Trade Types:

- **Regular Way Trades** – Trades in outstanding, already-issued securities:
  - Cash
  - T+1
  - T+2
  - T+3
  - Extended Settlement
- **New Issues** – (Also called When-Issued) Trades in securities that have not yet been issued.
- **Syndicate Takedowns**<sup>6</sup> – A type of New Issue that is distributed through a Syndicate Manager.

### 4.3. Submission Types

The input of all current submitters will automatically be processed through RTTM upon implementation. The way in which input is processed by RTTM is predicated upon how the submitted trades are coded for matching. There are essentially three types of submission that

<sup>6</sup> References to Syndicate Trades in this document will also apply to "Selling Group" trades. Syndicate Managers often form selling groups to participate in initial distributions of municipal securities. Dealers, for whom a syndicate agreement has not been signed, are permitted by syndicate managers to acquire municipal securities for resale on the same terms offered Syndicate Members.

correlate to the three types of matching within RTTM. submitters may use any or all submission types for conveying information to RTTM depending on their business.<sup>7</sup>

The Submission Types are being introduced briefly here to facilitate the discussion of Record Types in the upcoming section of this document; however, participants should refer to the “Centralized Trade Matching” section for a more comprehensive understanding of Submission Types.

- **Bilateral Submission** – Trade submission to RTTM of all trade details by both trade counterparties for Bilateral matching. In a real-time environment, each time one party submits a trade, its counterparty receives immediate trade notification (i.e., an advisory). The counterparty then has the option of submitting corresponding trade details to effect a match, in which case the trade would be compared. The counterparty can also DK the trade, precluding the trade from both matching and comparison, or can take no action, resulting in the unmatched trade being deleted from the system at end-of-day on Submission Date +2.
- **Demand Submission**<sup>8</sup> – Trade submission to RTTM of trade details by eligible Demand submitters (initially only Syndicate Managers). Counterparties to Demand trades may: 1) optionally submit corresponding trade details to effect a match; 2) DK the trade; or 3) take no action. Submission of corresponding trade details by the counterparty results in an immediate match. Submission of a DK by the counterparty precludes the trade from matching and prevents the trade from being sent to Settlement. If the counterparty takes no action, the trade is automatically marked as matched within RTTM (based solely on the trade details entered by the Demand submitter) within a prescribed period of time.
- **Locked-in Submission** – Trade submission to RTTM of trade details by eligible Locked-in submitters (initially the NYSE and QSRs). Locked-in trades are submitted to RTTM as compared trades. Counterparties to Locked-in trades may: 1) optionally submit corresponding trade details to effect a match; 2) DK the trade; or 3) take no action. Submission of corresponding trade details by the counterparty results in an immediate match. Submission of a DK by the counterparty results in an information-only notification being sent to the Locked-in submitter. The DK does not preclude the trade from matching, and has no impact on the trade being sent to Settlement. If the counterparty takes no action, the trade is automatically marked as matched within RTTM (based solely on the trade details entered by the Locked-in submitter) at the end of the day.

<sup>7</sup> The descriptions of submission types provided here concentrate on describing how processing would occur for each submission type in an Interactive Messaging environment. For a limited period of time, batch processing will continue to be supported as it is today.

<sup>8</sup> It should be noted that the submission/match mode known as Demand is in no way related to the existing process referred to as Demand As Of Processing.

## Submission Type Summary

Submission Type	Counterparty Action	Result in RTTM
Bilateral	Submit corresponding trade	Match
	DK	Notification to submitter, match precluded. Trade is purged from the system that night.
	None	Unmatched trade is purged after 3 days.
Demand	Submit corresponding trade	Match
	DK (OSD)	Notification to submitter, Match precluded. Trade is purged from the system that night.
	None	Match
Locked-in	Submit corresponding trade	Match
	DK	Notification to submitter that Trade has been DKed but Match <u>not</u> precluded.
	None	Match

## 4.4. Input Media

RTTM will be available for input from 7:00 AM to 8:00 PM (Eastern time), providing continuous service to participants between those hours. Initially, RTTM will continue to support current input media (with the exceptions listed below). In addition, Interactive Messaging input for real-time processing, and on-screen input via RTTM's Web User Interface will be accepted. Available input media are listed below:

- **NSCC Proprietary Input** – Initially, participants may continue to use their existing FITS Proprietary Input for submitting trades to RTTM. The long-term goal, however, remains to migrate all participants to Interactive Messaging to support straight-through processing (STP) and other industry initiatives. Additionally, it is anticipated that the regulators will require real-time submissions for price transparency.
- **ABS Input from NYSE** – ABS input will be accepted by RTTM and processed based on unilateral (or Locked-in) submission. In addition to accepting the end-of-day ABS input, RTTM will also be prepared to accept ABS input in multi-batch or via Interactive Messaging.
- **Interactive Messaging** – RTTM will support Interactive Messaging for original trade input (i.e., Instruct messages), and will further provide Cancel, DK, Reversal and Modify capabilities to participants.
- **PC Web Direct** – Participants will initially have the ability to continue to submit their trades to RTTM using PC Web Direct, either by keying in trades individually or uploading trade files. This service will eventually be replaced for fixed income products once the RTTM Web User Interface is fully deployed.

- **RTTM Web User Interface** – RTTM will provide a Web User Interface that will allow participants to enter all trade-related activity and obtain real-time status information for all transactions received by the RTTM system. It will support all transaction types available through Interactive Messaging, and will additionally support Affirm and DK Remove capabilities.

It should be noted that two input sources currently accepted, will be eliminated within FITS prior to the implementation of RTTM and have therefore not been incorporated into the RTTM design. These are:

- **Online Comparison System (OCS) Input** for Amex corporate bonds.<sup>9</sup>
- **Amex Order File (AOF) Input from American Stock Exchange** for Government Odd Lots. NSCC will inform participants through an Important Notice when this application will no longer be accepted as input to FITS.

## 4.5. Input Record Types

Participants will submit different inbound transaction record types depending upon whether they are batch or Interactive Messaging users. Initially, most current inbound transaction record types will remain available for participant input to facilitate their transition to Interactive Messaging. In addition, new inbound transaction record types will be introduced in conjunction with Interactive Messaging and the Web User Interface in a manner that is consistent, to the extent possible, with those used by RTTM for other fixed income products (i.e., Treasuries and mortgage-backed securities).

The transaction record types for batch and Interactive Messaging have been correlated so that new Interactive Messaging record types will be “translated” on output into existing batch record types for traditional batch output recipients and vice versa (that is, existing outbound batch record types will be “translated” into new record types for interactive output recipients, as appropriate).

### 4.5.1. Inbound Transaction Record Types for Batch Processing

The following existing FITS record types will continue to be supported for RTTM processing:

- **Trade Date Input** – Used by participants to submit trades for Bilateral matching on Trade Date. QSRs and Syndicate Managers may also use Trade Date Input to submit trades unilaterally against eligible counterparties (as compared trades).
- **As Of Input** – Used by participants to submit trades for Bilateral matching after Trade Date. Syndicate Managers and QSRs may also use As Of Input to submit trades unilaterally against eligible counterparties (as compared trades).
- **NYSE ABS Input** – Used by the NYSE via ABS to submit compared trades unilaterally against eligible counterparties on Trade Date.

<sup>9</sup> See NSCC Important Notice A5432 P&S5002 on OCS processing, dated 6/10/02.

- **One-Sided Delete** – Used by participants to unilaterally delete a previously submitted trade prior to matching. One-Sided Deletes may also be used by Syndicate Managers and participants to unilaterally delete Syndicate Trades through Submission Date + 2.
- **Withholds** – Used by participants to reverse, or offset, a previously submitted and matched trade. A Withhold effectively establishes a new transaction to exactly offset a previously matched transaction. It does not target, or in any way identify, the original underlying transaction it is reversing. (This is the same as current FITS processing.)

With the exception of Syndicate Trades, Withholds must be submitted by both trade counterparties for Bilateral matching in order to be processed. A Withhold may also be used by a Syndicate manager to unilaterally reverse a Syndicate trade from Submission Date through Settlement Date -1. After that time, to reverse a trade, the Syndicate Manager and its counterparty must submit Withholds for Bilateral matching.

- **QSR Reversal** – Can be submitted by QSRs through Trade Date + 1 to unilaterally reverse, or offset, a previously submitted (and, by definition, compared) QSR trade. Like a Withhold, a QSR Reversal does not target or in any way identify the original, underlying transaction it is reversing. Unlike a Withhold, however, a QSR Reversal is submitted as the opposite side of the original trade.

The following input record types will not be supported within RTTM:

- **Advisory Stamping** – Currently used by counterparties to submit corresponding trade details after Trade Date by accepting the trade details displayed on the trade advisory. (Note that, while Stamping will no longer be permitted, similar functionality will be provided with RTTM's Affirm capabilities via the Web User Interface.)
- **Demand As Of<sup>10</sup>** – Currently used to force a trade counterparty to respond to a previously submitted, but unacknowledged, trade. (Stamps, DKs and Rejects of Demand As Ofs will also be eliminated.)
- **One-Sided Delete of Non-Syndicate Matched Trades** – As indicated above, One-Sided Deletes will no longer be permitted for matched, non-Syndicate Trades.

#### 4.5.2. Inbound Transaction Record Types for Interactive Messaging

- **Instruct** – Used by participants to submit trades to RTTM for all Submission Types on or after Trade Date. (Interactive Messaging will not distinguish between Trade Date Input and As Of Input. Further, Instruct messages would support input by the NYSE, if the exchange elected to submit interactively in lieu of using their current end-of-day ABS Input.)
- **Cancel** – Used by participants to cancel unmatched trades that have not yet gone to Settlement.
- **Modify** – Used by participants to modify any information on a trade (Reversal) on Submission Date, where that trade has not been marked as matched and has not yet been sent to Settlement. After a trade has been marked as matched by RTTM or has been sent

<sup>10</sup> Note that Demand As Of and One-Sided Deletes of Non-Syndicate Matched Trades will be eliminated on FITS prior to the implementation of RTTM.

to Settlement, participants may only use Modifies to change their unique transaction reference numbers (x-refs).

- **DK** – Used by counterparties to inform a trade submitter that it does not know a trade. DKs can only be submitted against trades that have not yet been marked as matched within RTTM. For Bilateral and Demand trades, a DK prevents the trade from being marked as matched within RTTM and causes it to be canceled off the system at end-of-day. For Locked-in trades, the DK is for informational purposes only and does not preclude the trade from matching or from being sent to Settlement.
- **Reversal** – Used by participants to reverse, or exactly offset, a trade within RTTM. (Reversals will be used in Interactive Messaging in lieu of batch Withholds and QSR Reversals.) Reversal rules vary depending upon the Submission Type (Bilateral, Demand or Locked-in) and the timing of the Reversal entry. These rules are covered in detail in the Centralized Trade Matching section of this document. (As is the case with Withholds, it should be noted that RTTM will not verify that an underlying trade exists in RTTM when processing a Reversal.)

#### **4.5.3. Inbound Transaction Record Types for RTTM Web User Interface**

All Record Types supported by Interactive Messaging will also be supported by the RTTM Web User Interface. In addition, the Record Types listed below may be submitted exclusively via RTTM web screen (i.e., there are no messages for these functions).

- **Affirm** – Used by participants to match a counterparty's trade details by affirming, on-line, the trade advisory. Participants will have the ability to add or change information specific to their side of the trade.
- **DK Remove** – Used by participants to remove their previously submitted DK.

## 5. Centralized Trade Matching System

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RTTM will match trades in real-time and provide participants with immediate trade notification and status information, allowing participants to identify exceptions within minutes of trade execution. Resolution of exceptions may be achieved immediately using Interactive Messages and the Web User Interface. (Initially, equivalent batch processing will continue to be available, except where noted.)

As noted in the Introduction, since the use of the terms “Compared” and “Matched” is so central to the understanding of RTTM processing, the definitions of these terms are reiterated here:

- Compared: For Bilateral submissions, the trade is considered compared when the trade details submitted by both counterparties are matched and a report evidencing the terms of the trades is issued by the clearing corporation. For Locked-in and Demand submissions, the trades are already compared upon receipt by RTTM.
- Matched: A technical/operational feature of the RTTM system where a trade is either matched to trade details submitted by the counterparties (regardless of submission type) or it is automatically marked as matched within RTTM at a specified point in time (depending upon the submission type of the trade).

**As previously mentioned, in addition to accepting Bilateral trade input from participants for matching, RTTM will also provide Demand and Locked-in processing capabilities to provide the ability to match 100% of trades executed via the NYSE and QSRs on Trade Date.** Further, in order to simplify implementation and maximize benefits, RTTM will provide participants that are interactive or Web User Interface users with the capability of submitting trades for matching and reconciliation regardless of how trades are submitted by the counterparty during the limited submission window. (It should be noted that counterparties to Demand and Locked-in trades must either use Interactive Messaging or the Web User Interface to submit corresponding trade details for matching and reconciliation.)

## 5.1. Matching Record Types

The chart below shows how trades, as defined by their batch or Interactive Messaging Record Types, will match to one another within RTTM. It should be noted that existing Trade Date Input submitted in batch will now match to As Of Input Submitted in batch.

Method of Input	Record Type	Matches To Batch Records	Matches To Interactive Messaging Records
Batch	Trade Date Input	Trade Date Input, As Of Input	Instruct
	As Of Input	As Of Input, Trade Date Input	Instruct
	NYSE ABS Input	Not available	Instruct
	Withhold	Withhold	Reversal
	QSR Reversal	Not available	Reversal
Interactive Messaging	Instruct	Trade Date Input, As Of Input, NYSE ABS Input	Instruct
	Reversal	Withhold, QSR Reversal	Reversal

## 5.2. Matching Fields

Below is a listing of all matching fields, along with their definitions. Most of the matching fields are the same as those currently used by FITS. It should be noted that any new fields will only be required for layouts supporting Interactive Messaging and the Web User Interface. No changes are anticipated to the current formats for batch input or PC Web after FITS changes scheduled in the 1st Quarter of 2003. An Important Notice will be issued shortly detailing changes to FITS functionality in preparation of RTTM implementation. An overview of these modifications is included in Appendix A.

For Bilateral matching, these are the fields that will be submitted for matching by both trade counterparties. In addition, should the recipient of a Demand or Locked-in trade elect to submit corresponding trade details to effect a match for internal reconciliation purposes, these are the fields that will be matched against the Demand or Locked-in submitter's input.

1. **Major (Participant) Clearing Firm** – Member firm that is self-clearing and/or functions in the capacity of clearing firm for non-member executing firms. Major Clearing Firm must match the Minor Clearing Firm field on the counterparty's input record.
2. **Major (Participant) Executing Firm** – The four-character NASD symbol of the firm that executed the transaction and clears the trade through the Major Clearing firm. **RTTM will attempt to match Major Executing Firm against the Minor (Contra) Executing Firm on the counterparty's input record, but a non-match will not prevent the trade from comparing.** If the participant self clears, the submitter is required to provide its own NASD symbol in this field. It should also be noted that an exact match of Executing Firms will continue to be required for end-of-day trade

Summarization. (Refer to the next section of this document on Enhanced Matching at End-of-Day for additional details.)

3. **Minor (Contra) Clearing Firm** – Member firm that is self-clearing and/or functions in the capacity of clearing firm for non-member executing firms. Minor (Contra) Clearing Firm must match the Major Clearing Firm field on the contraparty's input record.
4. **Minor (Contra) Executing Firm** – The four-character NASD symbol of the firm that executed the transaction and clears the trade through the Minor (Contra) Clearing Firm. The same matching rules apply as noted in number 2 above. If the Minor (Contra) Clearing firm self clears, the submitter is required to submit the Minor (Contra) Clearing firm's NASD symbol in this field.
5. **Trade Date** – Trade Date specifies the date a trade was executed, which may or may not be the same as Submission Date. RTTM will first attempt an exact match of Trade Date. Trade Date mismatches may occur when "As Of" trades are submitted and one participant enters the correct "As Of" Trade Date while the other party enters the current date. For Bilateral trades RTTM will provide Enhanced Matching intraday and change the Trade Date on the other record to the earlier of the two Trade Dates if all other matching criteria, including Settlement Date, match.<sup>11</sup> For Demand and Locked-in trades, RTTM will presume the Trade Date submitted by the Demand or Locked-in submitter to be accurate. In addition, since NYSE ABS trades may only be submitted on Trade Date, special Trade Date processing does not apply to these trades.
6. **CUSIP Number** – The nine-character number that uniquely identifies the security being traded. Upon trade submission, the security master is queried and various routines are invoked to validate the submitted CUSIP and to determine parameters such as DTC and CNS eligibility, pricing, and the appropriate trade processing (Regular Way or New Issue).
7. **Market of Execution** – Identifies the fixed income product traded and market where executed: Municipal, OTC and AMEX Corporate, NYSE, or Unit Investment Trust.
8. **Quantity** – The par amount of the trade.
9. **Contract Amount** – For all Regular Way trades, the submitting firm must provide Contract Amount (final money).  
  
Further, a new money tolerance of \$1 per million (with a \$1 per transaction tolerance for trades under \$1 million) will be applied to effect matching intraday within RTTM for all trades. This is a new feature to improve the intraday matching rate to account for penny differences in the contract amounts submitted by trade counterparties. (Refer to the section on Enhanced Matching at End-of-Day for information on matching transactions based on an end-of-day money tolerance.)
10. **Price** – For When-issued trades with an unknown Settlement Date, the submitting firm must provide either yield or dollar price. A numeric value must be entered in the price

<sup>11</sup> It should be noted that this differs from what is currently performed in FITS today, where, for regular-way trades, an exact match is required, and for When-issued trades, a two business day difference between submitted trade dates is permitted.

field, and its corresponding format (yield or dollar price) must then be specified in the price indicator field (see No. 11). Once the trade has been accepted and all pricing information, including Settlement Date, becomes available, accrued interest and contract amount are calculated using industry-standard routines (dollar price is also calculated for yield submissions). Note: A separate (non-matching) field will be provided for the reporting of additional required yield information to the regulators. Price is a matching field in the absence of final money.

11. **Price Indicator** – Price and the pricing format of a trade are designated by two interrelated fields: the price field, which is populated with a numeric value, and the price indicator field, which specifies the format or type of price (e.g., yield, dollar price, or contract amount) of the value in the price field. For example, to submit a trade in dollar price, the submitter must enter a decimal value in the price field and a code that designates dollar price format in the price indicator field. Price indicator is a matching field in the absence of final money.

12. **Transaction Code** – The submitting firm must identify the type of transaction being entered. Transaction Codes may differ depending upon the input method used by the submitter. For example, a Withhold submitted in batch will match to a Reversal submitted in Interactive Messaging.

13. **Settlement Date** – The date on which a trade is scheduled to settle. In RTTM, ***Settlement Date will be a mandatory match field for all Regular Way trades***, and if it is not provided on trade input, the record will be rejected.

For When-issued trades, however, Settlement Date is required only if final money is submitted. It should further be noted that for When-issued trades, once the Settlement Date, or other information required to price the trade, becomes known, RTTM will calculate the Contract Amount.

14. **Settlement Date Adjustment (or Extended Settlement Date)** – The submitter of a When-issued trade can extend settlement for up to 15 business days beyond the announced Settlement (Distribution) Date. The number of extended settlement days must be entered in this field. For example, if a “3” is entered, the submitter elects to settle the trade three business days after the scheduled Settlement (Distribution) Date of the issue. This entry must match a corresponding Settlement Date Adjustment entry of “3” on the counterparty's input record to effect matching. This field does not apply to Syndicate or Regular Way trades. The trade will be rejected if this field is populated on a Syndicate trade. This field will be ignored for Regular Way trades because the contractual Settlement Date is provided in the Settlement Date field on trade input.

15. **Buy/Sell Indicator** – Designates whether the record being submitted is either the buy or the sell side of the trade. (Buy transactions can only match to sell transactions, and vice versa.)

16. **Settlement Type Indicator (Special Condition Trade Code)** – A Special Trade Code in this field designates that a trade is either matching-only or will result in trade-for-trade settlement. If this field is populated, the trade is not eligible for Trade Summarization.

(Refer to the Enhanced Matching section of this document for more information on Trade Summarization.)

17. **Syndicate Indicator** – An indicator to be submitted by the Syndicate Manager on its sell trades to identify the trades as Syndicate trades.
18. **QSR Indicator** – An indicator to be submitted by the QSR on its activity to identify the trades as QSR trades.

**NOTE:** The remaining fields listed below will be available in Interactive Messaging and on the RTTM Web User Interface exclusively.

19. **Syndicate Target Indicator** – An indicator to be submitted by the Syndicate Member on its buy trades, if the member elects to submit for internal reconciliation purposes, targeting the trade to be matched against a Syndicate sell. Intraday, RTTM will attempt an exact match of these trades with trades that have been coded as Syndicate Trades submitted by the Manager. (Refer to the Enhanced Matching at End-of-Day section of this document for details of matching non-targeting trades to Syndicate sells at end-of-day.)
20. **ABS Indicator** – An indicator to be submitted by the NYSE on its activity to identify the trades as ABS trades.
21. **ABS Target Indicator** – An indicator to be submitted by the contraparty of an ABS trade, if the member elects to submit for internal reconciliation purposes, targeting the trade to be matched against an ABS trade. Intraday, RTTM will attempt an exact match of these trades with trades that have been coded as ABS trades by the NYSE. (Refer to the Enhanced Matching at End-of-Day section of this document for details of matching non-targeted trades to ABS trades at end-of-day.)
22. **QSR Target Indicator** – An indicator to be submitted by the contraparty of a QSR trade, if the member elects to submit for internal reconciliation purposes, targeting the trade to be matched against a QSR trade. Intraday, RTTM will attempt an exact match of these trades with trades that have been coded as QSR trades by the QSR submitter. (Refer to the Enhanced Matching at End-of-Day section of this document for details of matching non-targeted trades to QSR trades at end-of-day.)

### 5.3. Special Situations

As is currently the case in the existing FITS system, new issue trades in “Memo” or “Pending” status are not available for matching of any type. Trades are placed in one of these statuses where there is a lack of Security Master information on the RTTM system. More specifically:

- A trade is placed in “Memo” status if it is submitted as a final money trade and the Settlement Date submitted on the record has not yet been posted to the RTTM Security Masterfile.
- RTTM will assign a “Pending” Status to a trade if it is submitted with dollar price or yield and if the security submitted on the trade is not currently on the Security Masterfile.

Participants will be notified via Interactive Messaging, Web User Interface, and via Intraday Blotter, where a trade is assigned one of these statuses. Participants will also continue to be notified on End-of-Day Contracts when a trade is in “Memo” status.

Once the required information is posted to the Security Masterfile, the “Memo” or “Pending” status will be removed, the trade will be made available for matching and the participant will be notified as to the change in status. Should the Security Masterfile not be updated with the required information:

- Trades with “Pending” status will be purged from the system at end-of-day on Submission Date.
- Trades in “Memo” status will be purged from the system at end-of-day on Submission Date + 2.

(For additional details on when trades are purged from the system, refer to Appendix E.)

## 5.4. Enhanced Matching at End-of-Day

RTTM will attempt to maximize trade matching intraday. However, in order to ensure as many trades as possible match on Trade Date, RTTM will also invoke enhanced matching processing at end-of-day. This is accomplished by employing an additional money tolerance and by invoking alternative matching processes that allow trades that do not match on a few, select fields to match based on certain presumptions of accuracy. Participants will be notified of any changes made to their original trade input as a result of Enhanced Matching processing. Each process is described below.

### 5.4.1. Final Money

As previously noted, a new money tolerance of \$1 per million (with a \$1 per transaction tolerance for trades under \$1 million) will be applied to final money in real-time to account for penny differences between the final money submitted by each party to the trade. A second, more relaxed tolerance will continue to be applied as part of Enhanced Matching at end-of-day.

If the matching attempt is for a trade less than \$100,000.00, a minimum \$10.00 tolerance will be applied. If the matching attempt is for a trade greater than \$100,000.00, a tolerance of ten cents per \$1,000.00 of contract money will be applied.

It should be noted that final money tolerances apply to all matching trade input. RTTM will determine which final money it will presume to be correct depending upon the trade match type.

- **For Bilaterally Matched Trades** – The final money submitted by the selling party is presumed by RTTM to be correct.
- **For Demand Trades** – The final money submitted by the Demand submitter (Syndicate Manager) is presumed by RTTM to be correct.
- **For Locked-in Trades** – The final money submitted by the Locked-in submitter (the QSR or the NYSE for ABS trades) is presumed by RTTM to be correct.

## 5.4.2. Summarization

As part of Enhanced Matching processing, RTTM will match multiple buy sides with multiple sell sides in a process called Summarization when the following conditions are met:

- The total par amount of the buy sides equals the total par amount of the sell sides;
- The total final money of the buy and sell sides falls within the final money tolerances described above;
- The total number of sides does not exceed a stipulated amount (currently contemplated to be ten); and
- Executing firms submitted on trade input match exactly.

It should be noted that RTTM Summarization differs from the current FITS Summarization. Further, Summarization will be a mandatory process for all trades (excluding ABS trades and trades that have been overridden with a Special Trade indicator). Because a counterparty can submit against QSR and Syndicate Trades for reconciliation purposes, summarization will also now be available for QSR and Syndicate Trades as described below.

The following trade types may be summarized with one another:

- Trade Date trades will be summarized with matching As Of Trades (whether submitted as such in batch or as Instruct messages via Interactive Messaging or Web User Interface);
- QSR trades will be summarized with matching trades submitted against QSRs (both QSR-targeted trades and non-QSR-targeted trades);
- Syndicate sells (submitted on a Demand basis by Syndicate Managers) will be summarized with matching trades submitted against them (both Syndicate-targeted buys and non-Syndicate-targeted buys); and
- Withholds, QSR Reversals and Reversals will be summarized together.

## 5.4.3. Trade Target Field

The Trade Target field may be used by a Demand or Locked-in trade recipient to identify, or target, the type of trade it is submitting against. This optional feature has been provided to allow participants the greatest amount of flexibility in the design of their internal reconciliation processes. As previously noted, valid Trade Target field values include:

- Syndicate – for trades targeting Syndicate Trades;
- QSR – for trades targeting QSR Trades; and
- ABS – for trades targeting NYSE ABS Trades.

If trades do not match in real-time during the processing day, during Enhanced Matching RTTM will attempt to match non-targeted trades to the Demand or Locked-in trades. This means:

- An unmatched buy, not targeting a Syndicate sell, will match against the Syndicate sell if all other applicable fields match or fall within specified Enhanced Matching parameters;

- A unmatched trade, not targeting a QSR trade, will match against a QSR trade if all other applicable fields match or fall within specified Enhanced Matching parameters; and
- An unmatched trade, not targeting a NYSE ABS trade, will match against an ABS trade if all other applicable fields match or fall within specified Enhanced Matching parameters.

**It should be noted that participants that are Batch or PC Web users should not submit corresponding trade details against Demand or Locked-in trades to preclude reporting inconsistencies resulting from the constraints of the batch processing system.**

It should further be noted that a trade, targeting a Demand or Locked-in trade, would never match against a trade that has not been designated as such by the submitter.

## 5.5. Bilateral Matching

This matching method requires that the two trade counterparties (i.e., the buying and selling participants) submit certain mandatory trade details to RTTM that either match exactly or fall within predefined parameters to effect matching (as noted previously in the “Matching Fields” and “Enhanced Matching at End of Day” sections of this document). This is the primary submission/matching mode for participant-to-participant trades.

### 5.5.1. Trade Submission

While trades should be submitted to RTTM upon execution, Regular Way trades may be submitted for Bilateral matching on or after Trade Date.

Non-Syndicate When-issued trades may be submitted for Bilateral matching on Trade Date through Settlement (Distribution) Date -1.<sup>12</sup>

### 5.5.2. Trade Matching

Regular-way trades will remain available for matching to counterparty submissions through Submission Date + 2.

When-issued trades will remain available for matching to counterparty submissions until the earlier of Submission Date + 2 or Distribution Date -1.<sup>13</sup>

### 5.5.3. Post-Submission Processing

#### 5.5.3.1. Batch Submitters

Before a trade is matched within RTTM, the original submitter may delete its trade by submitting a One-Sided Delete.

To effectively reverse a trade that has been matched, both parties must submit a Withhold where both parties are batch submitters. Data submitted by each member on their respective Withhold

<sup>12</sup> When-issued (non-syndicate) *Extended Settlement* trades may be submitted for Bilateral matching to RTTM until Submission Date +2 or *Distribution* Date -1, whichever date is earlier (refer to Appendix C).

<sup>13</sup> When-issued (non-syndicate) *Extended Settlement* trades will be available for matching to Counterparty submission, until Submission Date +2 or *Distribution* Date -1, whichever date is earlier (refer to Appendix D).

transactions must match according to the same match criteria as the original input. A matched Withhold constitutes an equal and offsetting transaction to the original trade, effectively reversing the trade. RTTM will not verify that the underlying, original trade exists in order to process the Withhold. In addition, batch Withhold transactions will continue to be submitted on the same side as the original transaction.

### 5.5.3.2. Interactive Submitters (including Web User Interface)

Before a trade is matched in RTTM, or sent to Settlement, the original submitter may delete the trade by submitting a Cancel message. On Submission Date, the original trade submitter may also modify any data on a previously submitted, unmatched trade using a Modify message. After Submission Date, or once a trade is matched in RTTM, only the submitter's unique reference number for the trade (i.e., the x-ref) may be modified by the submitter<sup>14</sup>.

Prior to the trade being matched, the trade counterparty may indicate that it does not know the trade by submitting a DK, notifying the submitting firm so that it can correct the underlying trade on Submission Date. (Note: A Bilateral trade in a DK status is not available for matching within RTTM.)

After a trade is matched within RTTM, both parties to the trade must submit a Reversal to effectively reverse a trade. Data submitted by both trade parties on the Reversals must match according to the same match criteria as the original input. Like a Withhold, a matched Reversal constitutes an equal and offsetting transaction to the original trade, effectively reversing the trade for settlement.

## 5.6. Demand Matching (Syndicate Trades)

Demand processing was designed and implemented for RTTM for Treasury securities and has been adapted to accommodate Syndicate Trades. Similar to Locked-in processing, it allows for the automatic recording of trades based on the unilateral input of approved Demand submitters. Demand processing allows participants to achieve 100% matching of trades, even if they do not wish to submit trades or are not capable of submitting trades interactively or via multi-batch. As noted below, Syndicate Members may, however, submit buy trades against the Syndicate Manager sells to facilitate matching for internal reconciliation. Further, if the counterparty DKs a Demand trade, it will preclude the trade from being matched within RTTM and entering the settlement process. **Only Syndicate Trades submitted by Syndicate Managers will be processed as Demand trades.**

### 5.6.1. Trade Submission by the Syndicate Manager

Syndicate Managers, who only submit the sell side of Syndicate Trades, may submit through Settlement (Distribution) Date -1. These trades should be coded as Syndicate Trades by the Syndicate Manager to distinguish them from other When-issued securities trades. Please refer to Appendix C for a summary of timeframes for trade-related actions in RTTM.

<sup>14</sup> Due to constraints of the current batch reporting system, only the x-ref can be modified on RTTM after Submission Date.

## 5.6.2. Trade Matching

Trades submitted by Syndicate Managers (i.e., Syndicate sells) are considered compared upon receipt by RTTM. These trades will, however, be available for matching (for reconciliation purposes) against trade details submitted by their trade counterparties through the earlier of Submission Date + 2 or Settlement Date -1.<sup>15</sup> In addition, during this open matching window, a Syndicate trade will also be subject to cancellation if either party submits a One-Sided Delete in batch, the submitter cancels the trade, or the trade counterparty submits a DK interactively via the RTTM Web User Interface. This process is defined more fully below in “Post Submission Processing.”

If the counterparty takes no action (i.e., does not submit corresponding trade details to effect a match, or does not DK the trade within the matching window), the trade will automatically be marked as matched by RTTM, and the trade will subsequently be forwarded to Settlement on the appropriate day. Please refer to Appendix D for a summary of RTTM matching timing rules.

## 5.6.3. Trade Submission by the Syndicate Counterparty

As noted above, the counterparty of a Syndicate sell trade (the Syndicate Member) has the option of submitting corresponding buy trade details (i.e., Syndicate buy transactions) to RTTM to effect a match for reconciliation purposes through the earlier of Submission Date + 2 or Settlement Date -1. This allows participants to utilize a single, all-encompassing trade processing and matching system within their organizations for all fixed income transactions. **This is a new feature within RTTM. In order to preclude reporting inconsistencies/errors resulting from the constraints of FITS, participants that are Batch or PC Web users should not submit corresponding trade details to match against Syndicate sell trades.**

If the Syndicate Member elects to submit corresponding buy details for matching, the same match criteria for Bilaterally submitted When-issued trades would apply. In addition, the counterparty should code the trade as a Syndicate in the Trade Target field.

Intraday, RTTM will attempt to match only those trades targeted against Syndicate sells. (However, as noted in the “Enhanced Matching at End-of-Day” section of this document, RTTM will attempt to match non-Syndicate-targeted buy transactions, having matching trade details that fall within all other Enhanced Matching parameters, to Syndicate sell transactions. This will replace the current Possible Duplicate (Poss Dupe) FITS processing.)

## 5.6.4. Post-Submission Processing

### 5.6.4.1. Batch Submitters

Before a trade is marked as matched within RTTM (either based on the submission by the Syndicate Member or at end-of-day Submission Date + 2), the Syndicate Manager, or the trade counterparty, may delete the trade by submitting a One-Sided Delete in batch. End-of-day Batch Files to participants will reflect the trade with a final status of OSD (One-Sided Delete).

To effectively reverse a Demand Syndicate trade, the Syndicate Manager can submit a unilateral Withhold through end-of-day on Settlement (Distribution) Date -1. The Withhold submitted (in batch) by the Syndicate Manager can be Bilaterally matched against a Reversal submitted

<sup>15</sup> The open matching window was defined to support current One-Sided Delete capabilities.

interactively (or via the Web User Interface), or will match automatically in the RTTM system following the same logic as initial trade submission and matching.

This Withhold, once marked as matched, constitutes an equal and offsetting transaction of the original trade, effectively reversing the trade.

#### **5.6.4.2. Interactive Submitters (including Web User Interface)**

Before a trade is marked as matched within RTTM, the Syndicate Manager may unilaterally delete its own trade by submitting a Cancel message.

In addition, before the trade is marked as matched, the Syndicate Member (contraparty) may indicate to RTTM (and, ultimately, the Syndicate Manager) that it does not know the Syndicate sell by submitting a DK. **A DK submitted by the contraparty of a Demand Syndicate trade will preclude that trade from being matched or forwarded to Settlement.** Additionally, the trade will be canceled off the system if it remains in a DK status at end-of-day.

The submitter may use a Modify message on Submission Date to change any trade details if the trade has not been marked as matched, and has not gone to Settlement. After the Submission Date, regardless of whether or not the trade has been marked as matched, the parties to the trade may only use the Modify message to change their x-ref.

To effectively reverse a Demand Syndicate trade, the Syndicate Manager can submit a unilateral Reversal through end-of-day Settlement (Distribution) Date -1. The Reversal submitted by the Syndicate Manager can be Bilaterally matched against a Reversal submitted interactively, or will match automatically in the RTTM system following the same logic as initial trade submission and matching.

After Settlement (Distribution) Date- 1, both parties to the trade must submit a Bilateral Reversal of a Regular Way (rather than a When-issued) trade to effectively offset a Syndicate Trade. Data submitted by both trade parties on the Reversal must match according to Bilateral Regular Way matching criteria. It is recommended that participants code this Bilateral Reversal as a "Special Trade" to prevent them from entering the CNS system.

## **5.7. Locked-in Trade Recording for QSR and NYSE ABS Trades**

The Locked-in submission alternative was originally designed for participants who are trading with an electronic trading system or exchange. It presumes that the participant will not elect to submit corresponding trade details to effect a match, but will instead allow the Locked-in submitter's input to record trades for automatic matching within RTTM at end-of-day. (As with Syndicate Demand trades, the participant will still have the option of submitting trades for matching as a means of intraday trade reconciliation.)

The participant will also have the ability to submit a DK against a Locked-in trade; however, this DK will be for informational purposes only; it will not preclude the trade from being matched or sent to Settlement.

## 5.7.1. Trade Submission

### 5.7.1.1. ABS Trades

All ABS trades submitted by the NYSE are currently received on Trade Date, in a single batch file at end-of-day, in the NYSE ABS proprietary format. The NYSE also will have the option of submitting its current batch input multiple times throughout the day. RTTM will continue to accept the NYSE ABS proprietary format; however, RTTM has been flexibly designed to accept Interactive Messaging to accommodate NYSE ABS input and produce associated output if/when the exchange should opt to submit in real-time.

Please refer to Appendix C for a summary of timeframes for trade-related actions in RTTM.

### 5.7.1.2. QSR Trades

QSRs will have the option of submitting in batch through end-of-day on Trade Date + 1, via Interactive Messaging or the Web User Interface.

All QSRs must be approved as qualified Locked-in submitters by NSCC. In addition, QSRs may only submit against approved counterparties that have contractually agreed to accept Locked-in trades submitted against them by the QSR (that is, agreements are in effect between the QSR, the recipient and NSCC).

Please refer to Appendix C for a summary of timeframes for trade-related actions in RTTM.

## 5.7.2. Trade Matching

All Locked-in trades are considered compared transactions upon receipt by RTTM. Additionally, these trades will be available for matching (for reconciliation purposes) against trade details submitted against them by their counterparties through the end of Submission Date.

If the counterparty takes no action (i.e., does not submit corresponding trade details to effect a match), the trade will automatically be marked as matched by RTTM at end-of-day. Regular-way Locked-in trades will be sent to Settlement upon receipt by RTTM. (When-issued trades will be sent to Settlement based upon rules for new issues.)

Please refer to Appendix D for a summary of RTTM matching timing rules.

## 5.7.3. Trade Submission by the Locked-in Counterparty

As noted above, the counterparty of a Locked-in trade has the option of submitting corresponding trade details to RTTM to effect a match for reconciliation purposes through the end of Submission Date. **This is a new feature within RTTM. As such, only participants that are Interactive Message users can submit corresponding trade details to preclude reporting inconsistencies/errors resulting from the constraints of FITS.**

If the counterparty of a Locked-in trade elects to submit corresponding trade details for matching, the same match criteria for Bilaterally submitted Regular Way or When-issued trades would apply. In addition, the trade submitted by the counterparty should target the trade for matching against a Locked-in trade by coding the trade as an ABS or QSR trade in the Trade Target field.

Intraday, RTTM will attempt to match only those trades targeted against the specified Locked-in trade type (i.e., ABS or QSR). However, as noted in the “Enhanced Matching at End-of-Day” section of this document, RTTM will attempt to match 'non-targeted' transactions to ABS and QSR transactions if all other matching trade details fall within Enhanced Matching parameters.

## **5.7.4. Post-Submission Processing**

### **5.7.4.1. Batch Submitters**

Because ABS and QSR trades are completely Locked-in at the point of submission, they are immediately considered to be compared within RTTM and are therefore sent to Settlement upon receipt (with the exception of trades in New Issue securities, which are not sent to Settlement until Settlement [Distribution] Date -2). Further, as noted previously, Locked-in trade recipients that are batch users are discouraged from submitting any activity against a Locked-in submitter.

The only post-submission processing option for batch users is the existing ability for a QSR to submit a QSR Reversal on a unilateral, Locked-in basis on Trade Date or Trade Date + 1.

### **5.7.4.2. Interactive Submitters (including Web User Interface)**

The trade counterparty may indicate that it does not know the trade by submitting a DK. As noted above, a DK of a Locked-in trade is for informational purposes only and will not affect the trade matching status nor settlement processing.

To effectively reverse a previously submitted, Locked-in trade, the Locked-in submitter (QSR or NYSE) may submit a unilateral (Locked-in) Reversal.

For QSR trades only, after Trade Date + 1 both parties to the trade must submit a Reversal to effectively offset a trade on a Bilateral basis. Data submitted by both trade parties on the Reversal must match according to the same match criteria as the original input. Matched Reversals constitute equal and offsetting transactions to the original trades, effectively reversing the trades for settlement.

## 6. Settlement System Interface

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RTTM's design for fixed income products will fully support the new processing features that will be introduced with the redesign of the Continuous Net Settlement (CNS) system as well as requirements for straight-through processing. Further, RTTM will also be constructed to accommodate the processing features associated with the current T+3 settlement environment as well as T+1, if and when the industry moves forward. It is important to note that processing features being introduced in conjunction with RTTM will not affect current rules governing the settlement guarantee of trades.

RTTM will code trades for settlement (i.e., specify the settlement method) and forward the trades for appropriate location. It should also be noted that RTTM will continue to adjust Settlement Date/delivery date on trade records as required. There are currently three settlement methods employed for NSCC-eligible fixed income securities:

- CNS – CNS nets security obligations to one net buy or sell position in each issue. Through CNS, NSCC becomes the central counterparty to each position and guarantees settlement.
- Balance Order – Balance Orders are netted on a multilateral basis within the settlement system, and participants settle net Balance Orders with each other according to instructions generated by the system (i.e., Balance Orders may be generated for UITs and Corporates between participants that were not original trade counterparties).
- Trade-for-Trade – These trades are settled on a one-to-one basis between the original trade counterparties (i.e., are not netted or guaranteed).

Independent of RTTM, modifications are planned for CNS to support Submission on Settlement Date (i.e., As Of Trades that compare on the morning of Settlement Date will settle the same day). The details of any changes in settlement processing in connection with these initiatives will be communicated separately.

Cash trades (i.e., same-day settling trades in which the transaction's Trade Date is equal to its Settlement Date) while eligible for matching within RTTM, will not be forwarded to the settlement system.

It should be noted that the implementation of RTTM for NSCC-eligible fixed income securities will not change any procedures relating to reports participants will receive from the Settlement system, although there may be other changes required as a result of the industry moving towards accelerated settlement.

## 7. RTTM Reporting

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As a result of the RTTM implementation, there will be some changes made to the reports that participants receive. Existing end-of day reports will continue to be produced by FITS, intraday reports will be produced by RTTM, and settlement information will continue to be provided as it is today.

For intraday reports, RTTM will assume responsibility for the creation of Muni/Corp/UIT Intraday Blotters, and replace the Fixed Income Muni/Corp/UIT Intraday MRO with interactive output. The print image blotters will contain the same basic information, with minor adjustments made for the new transaction types, events and statuses.

The following end-of-day print image reports and MRO for New-issue and Regular Way trades will continue to exist in their current FITS formats, but will eventually be replaced by RTTM output:

- Muni Contracts
- Corp (OTC and Amex)/UIT Contracts
- NYSE Contracts
- Muni/Corp/UIT/NYSE New Issue Detail Transactions
- Muni/Corp/UIT/NYSE Recalculations
- MSRB Confirms Output
- NASD TRACE Accept/Reject (effective July 1, 2002)

## 8. RTTM Web User Interface

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The RTTM Web User Interface will allow participants to enter all trade-related activity and obtain real-time status information for all transactions received and/or updated by the RTTM system. It will further give participants robust query and list capabilities, and will additionally provide a facility for retrieving and viewing print image reports. This interface, which may be customized by participants, will provide the user with the capability to:

- Perform trade entry, modification and cancellation;
- View Advisories and Affirm or DK requests for matching;
- Immediately identify exceptions;
- Research alternative solutions using intelligent query tools;
- Resolve exceptions from a series of interconnected windows into the RTTM application;
- Review trades submitted against them and submit corresponding trade details to effect a match with minimal keying required;
- View all of their matched and unmatched trades, including those submitted by QSRs, and the NYSE, on a product type, individual security or contraparty basis, as well as some combination of these criteria; and
- Access intraday, end-of-day and historical print image reports.

All commands and data input entered via the RTTM Web User Interface will be validated in real-time. Input errors will generate an immediate response on the input screen identifying the incorrect data element.

Participants will be able to enter trade management action commands to the system a number of ways. These are:

- By viewing potential problems on the Exception Recap Summary;
- By selecting a single trade via Advanced Search capabilities;
- By using RTTM's Transaction ID, their own reference numbers or the contraparty's x-ref;
- By selecting a specific status of a trade to query;
- By selecting any known trade information such as CUSIP, contraparty, Settlement Date, etc.; and
- By using transaction lists obtained through query functions and screen-based reports.

Additionally we will explore providing new functionality to support price reporting to regulators.

(Note that supplemental processing will be initially available through PC Web Direct, but we anticipate that the Web User Interface will ultimately replace PC Web for fixed income products.)

# 9. Regulatory Reporting

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As noted in the Executive Summary, RTTM's existing infrastructure will be leveraged to establish a centralized Hub that will serve as a single conduit for participants to submit all of their fixed income trades. The Hub would then route the trades to their appropriate destination for processing – either to one of the various product-specific matching facilities, or to regulatory agencies. Additionally, the RTTM pipeline will support input submitted for trade processing only or for regulatory reporting only (e.g., to correct data required by the regulators, but not by RTTM). For customer trade reporting, participants will also have the ability to submit customer trades to RTTM for regulatory reporting purposes only.

Participants may elect to submit a single trade message to RTTM for both matching and real-time reporting of their bond trades to the regulatory agencies to comply with anticipated price transparency and surveillance requirements. As previously noted, this eliminates the need for participants to duplicate trade reporting through separate input streams and improves processing efficiencies.

## 9.1. Goals and Objectives

To be successful in our endeavor to implement real-time trade reporting requires a coordinated effort between the Clearing Corporation and the regulatory bodies. We share a common goal of utilizing the existing infrastructure to minimize the communications costs incurred by our participants.

The RTTM router will function as a centralized front-end trade-capture engine, channeling messages upon receipt to the appropriate organizations, with street-side and customer bond trades reported to the appropriate regulators. While having unique business objectives – clearing and settlement versus price transparency and regulatory surveillance – all parties share a common interest in obtaining and disseminating information on a timely basis. By working proactively, in a coordinated and efficient manner, we will achieve industry objectives, eliminate redundant processes, and ensure a mutually beneficial relationship with our member firms. Benefits of a coordinated approach include:

- A single pipeline for all Fixed Income products that takes advantage of existing infrastructure.
- A common inbound message and message format that satisfies comparison, settlement, and regulatory requirements. (It is anticipated that regulatory input requirements will be incorporated in the RTTM trade input specifications.)
- A customized, business-specific, approach to validation.
- Multiple user interfaces that offer input flexibility.
- Customized output that is specific to business objectives of the Clearing Corporation's and the regulators' unique requirements.

## **9.2. Benefits of a Coordinated Approach**

### **9.2.1. Single Pipeline**

Fundamental to our implementation strategy is the utilization of existing infrastructure. One such opportunity is GSCC/DTCC's fully developed, functional, and proven Access Network. GSCC is currently working with the regulatory bodies to examine what additional uses the Access Network could provide to those delineated in The Single Pipeline section of this document.

### **9.2.2. Standard Message Formats**

Another area of opportunity that can eliminate redundancies is the utilization of a standard message format for all fixed income trade processing. GSCC laid the foundation for achieving this goal in its U.S. Government securities business, implementing the ISO 15022 formats for all RTTM inbound and outbound transaction related messages. This initial stride toward standardization soon expanded to include Interactive Messaging as an interface to support RTTM for mortgage-backed securities, and with the latest addition of Corporates, Municipals and UITs, standardization is fast becoming a reality.

The positive effects of message standardization can be amplified through mutually beneficial trade input requirements. Based on this approach, GSCC's input specification will evolve from a comprehensive analysis that is anticipated to include the requirements for price reporting purposes.

### **9.2.3. Business-Specific Validation**

The front end to RTTM will function as a central router for trade input, forwarding transaction details to all appropriate parties. Upon receipt of a trade submission, it is envisioned that RTTM will run a cursory validation of the input, leaving business-specific checks and edits to the individual organizations. This prevents duplicated efforts and allows GSCC and the regulators to satisfy their own business objectives.

### **9.2.4. Flexibility of Multiple User Interfaces**

Our member firms have unique requirements, and one size does not necessarily fit all, so RTTM will incorporate three methods for submitting trade input. Regardless of which interface is used for inbound information, GSCC will prepare the specification for RTTM outbound messages, and the regulators will develop a specification for messages related to regulatory reporting. This allows all parties to satisfy requirements associated with their respective function.

- Interactive Messaging (SWIFT) - A single inbound SWIFT message can fulfill the requirements for submission to matching, settlement, and regulatory reporting.
- Web Interface - A new, browser-based interface will provide participants with the added flexibility of inputting trades through a web screen. Once a record is submitted, the captured data is processed accordingly, and is converted to a SWIFT message, which is routed to the appropriate regulatory body.

- Bulk File Transmission - GSCC anticipates that during the transition to real-time reporting, when participants are migrating to real-time, RTTM will still accept batch file submissions. These trades will be reported to the regulatory agencies via proprietary formatted messages over MQ. Maintaining batch input functionality will lessen the impact that migration has on participants, but it will only be available for a limited time.

### **9.2.5. Communication Network**

As discussed throughout this document, existing infrastructure should be utilized wherever possible. A first step is to establish connectivity between GSCC and the regulatory bodies, thereby taking advantage of GSCC's Access Network and existing MQ infrastructure for reporting trades.

### **9.2.6. Inbound Specifications**

GSCC will develop inbound message specifications for RTTM that incorporate the MSRB's and NASD's data requirements for trade reporting. A single inbound message format, which is based on an existing RTTM layout, will be designed through a collaborative effort.

### **9.2.7. Outbound Specifications**

Unique business objectives dictate that GSCC and the respective regulators prepare their own outbound message specifications. All messaging will comply with ISO standards and conform to previously published GSCC messaging specifications, wherever possible.

### **9.2.8. Transaction Flows**

Given the complexity of messaging flows for multi-destination routing, it is only prudent that the individual organizations define the trade flows related to their specific function. GSCC will define RTTM trade flows, and the regulators will define trade flows for regulatory processing. It is anticipated that all flows, however, will be consistent with established messaging constructs.

### **9.2.9. Accomplishing Our Goals**

GSCC recognizes that in order to accomplish our goals with respect to interfacing with the regulators, a number of logistical issues must be addressed. Therefore, we are working with the regulatory bodies to establish a scope, approach and timetable for meeting project milestones.

# List of Appendices

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Appendix A	Summary of FITS Processing Changes
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Appendix D	RTTM System Matching Timing Rules
Appendix E	RTTM System Trade / Reversal Transaction Purge Rules

# Appendix A

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## Summary of FITS Processing Changes

**The following FITS changes will occur *prior* to RTTM implementation (scheduled for the 1st Quarter, 2003):**

- A cutoff time of 8:00 p.m. will be established for Trade Date input. (The separate cutoff for Supplemental and Adjustment input will be eliminated.)
- Settlement Date will be required on Regular Way input.
- A unique participant reference number (x-ref) will be required on trade input.
- Demand As Of processing will be eliminated.
- The use of a One-Sided Delete, which allows for unilateral trade cancellation, will no longer be permitted for matched secondary trades. (Its usage will be retained for Syndicate and unmatched trade processing).
- All participants will be made eligible for Trade Summarization.
- The New Issue trade input format “Yield as a Percent of Offering” will be eliminated.
- Carry Forward Totals will be removed on Regular Way Contracts.

**The following are some of the changes which may affect existing batch input and output, that will occur upon implementation of RTTM:**

- Trade Stamping capabilities will no longer be supported. (Note that the RTTM Web User Interface will provide on-line Affirmation quick trade entry capabilities.)
- Intraday blotter Machine Readable Output (MRO) will be eliminated.
- OTC Corporate Bond mixed lot bond trades will no longer be accepted. Denominations of less than 1,000 may no longer be combined with round lots; they will be required to be submitted as separate odd lots.
- New Issue “Possible Duplicate” (Poss Dupe) processing will be replaced with matching capabilities for Syndicate Trades.
- An Intraday money tolerance of \$1.00 per million will be introduced.
- Regular Way trades will match with different Trade Dates if other trade matching criteria fall within Enhanced Matching parameters. (New Issue trades currently can compare with a Trade Date difference of up to two business days. This two day constraint will be removed).
- Trade Summarization will be mandated.

# Appendix B

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## Samples of RTTM-CMU Message Flows

### Bilateral

1. Bilateral Trade Submission - Matched
2. Bilateral Trade Submission – DKed by Contraparty

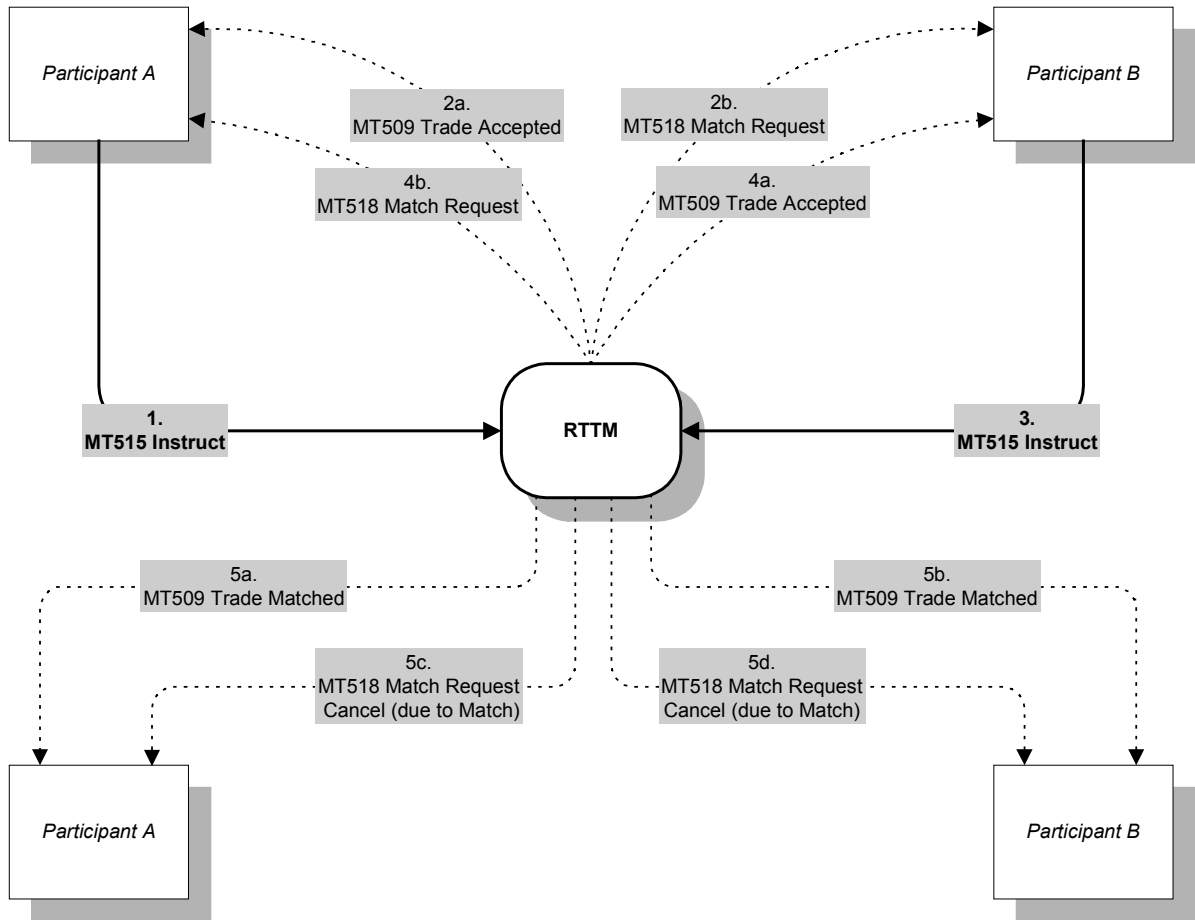
### Demand/Syndicate

3. Syndicate Trade – Automatically Marked as Matched at End-of-Day on Submission Date +2
4. Syndicate Manager Trade – Bilaterally Matched Intraday by Syndicate Buy Side
5. Syndicate Takedown DKed by Contraparty

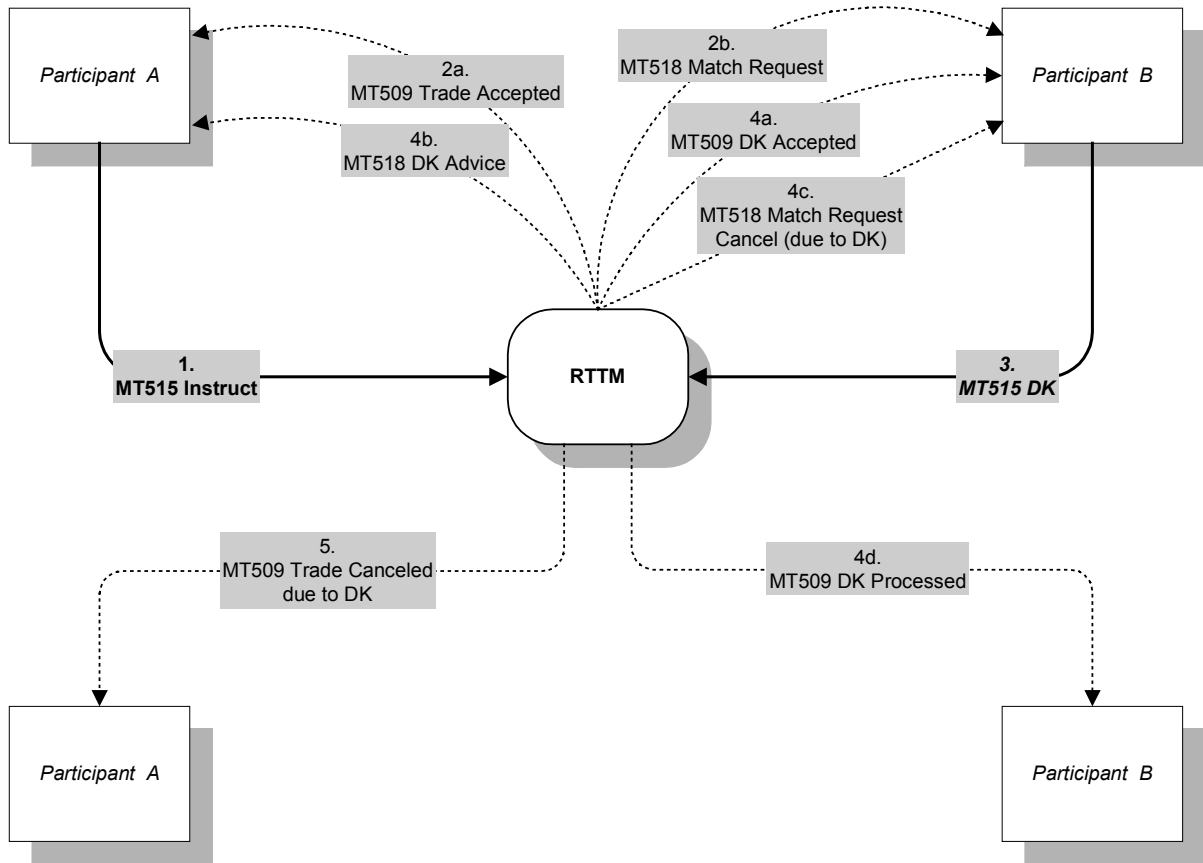
### Locked-in

6. ABS/QSR Trade Submission – Automatically Marked as Matched at End-of-Day
7. Unilateral Reversal of a QSR Trade (by QSR After Initial Trade Matching)

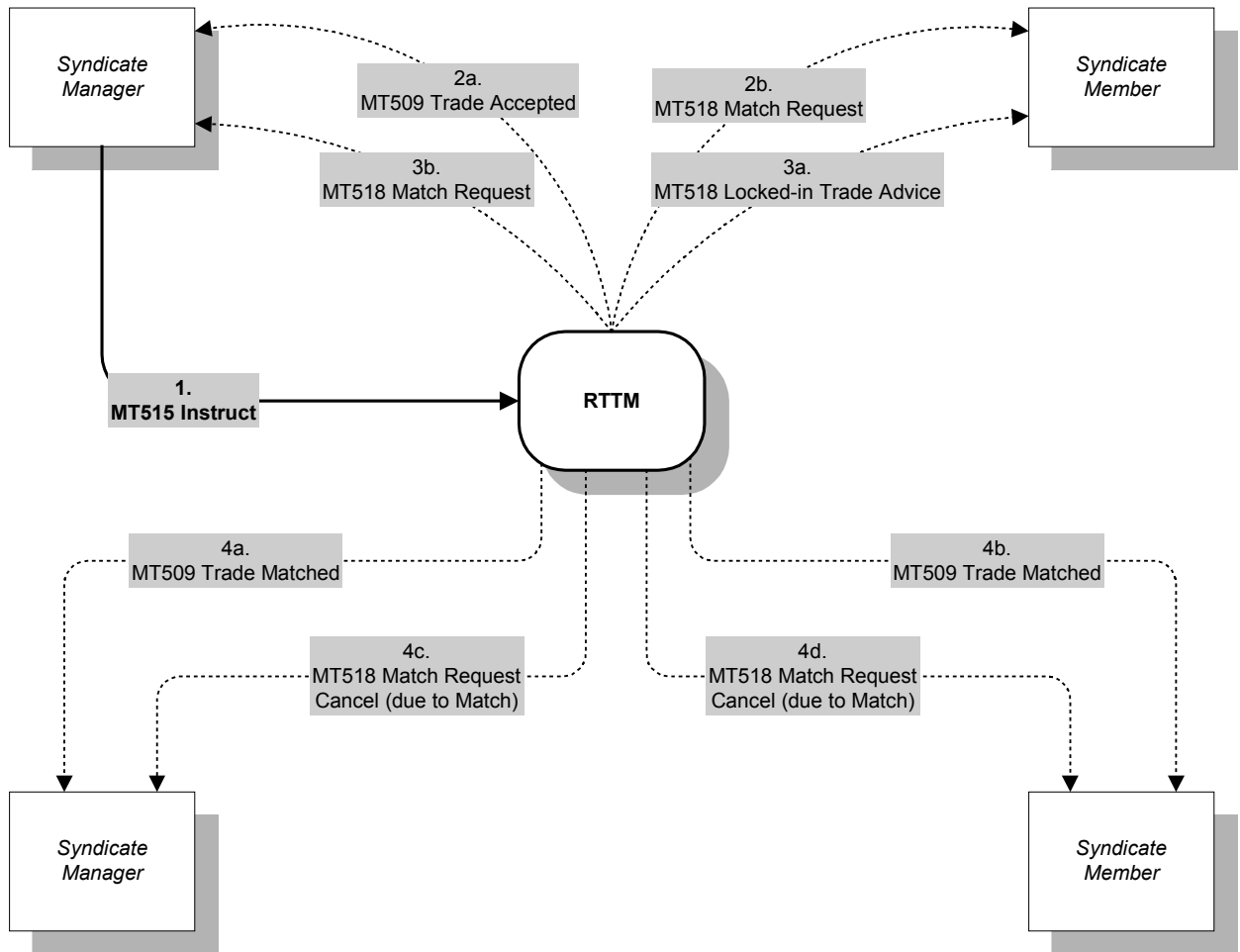
### 1. Bilateral Trade Submission - Matched



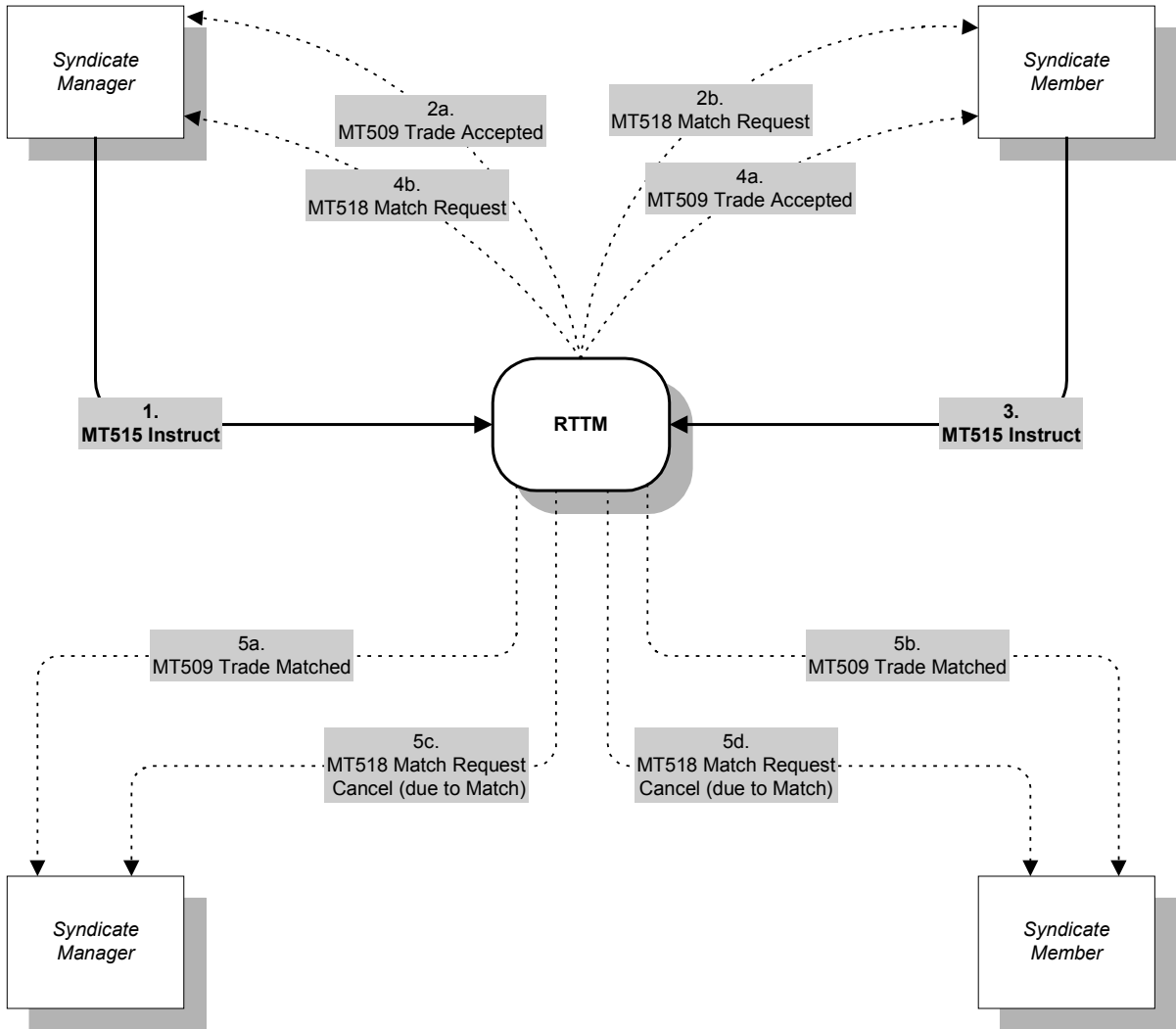
## 2. Bilateral Trade Submission - DKed by Contraparty



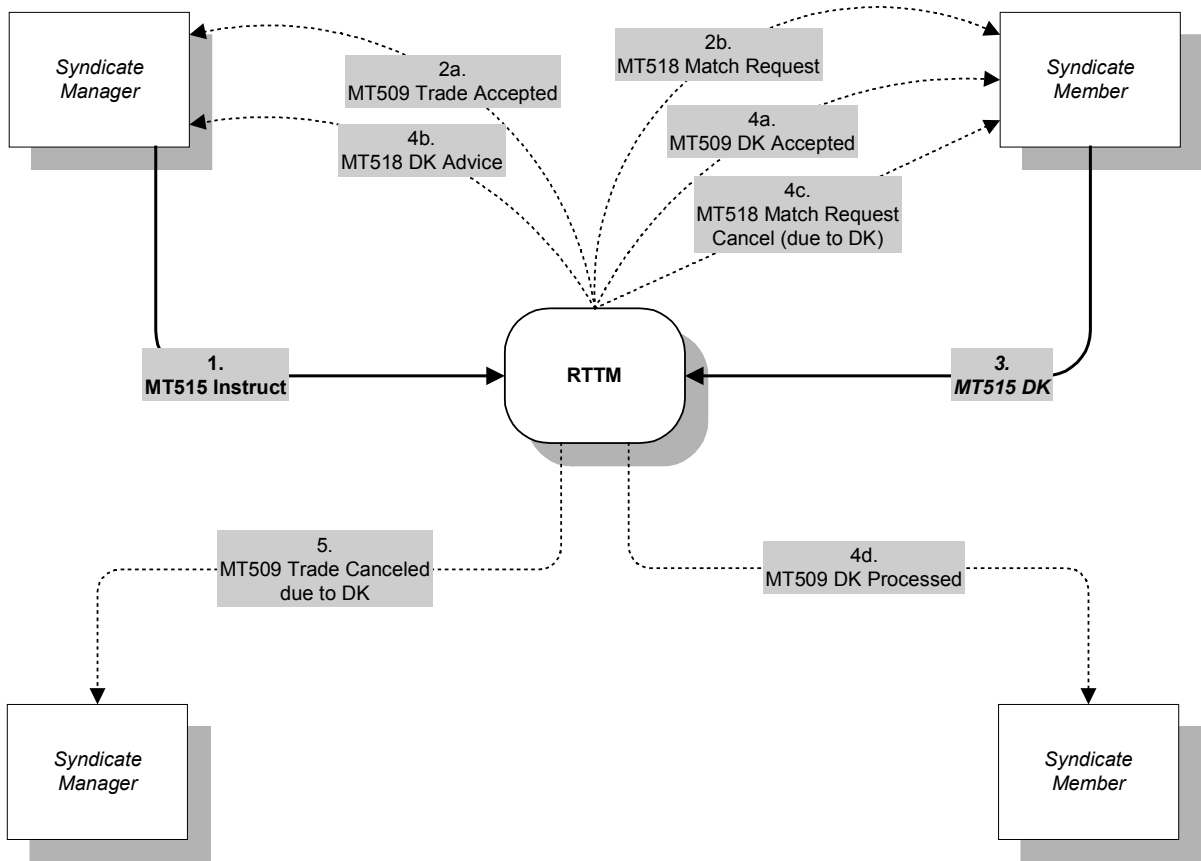
### 3. Syndicate Trade - Automatically Marked as Matched at End-of-Day on Submission Date +2



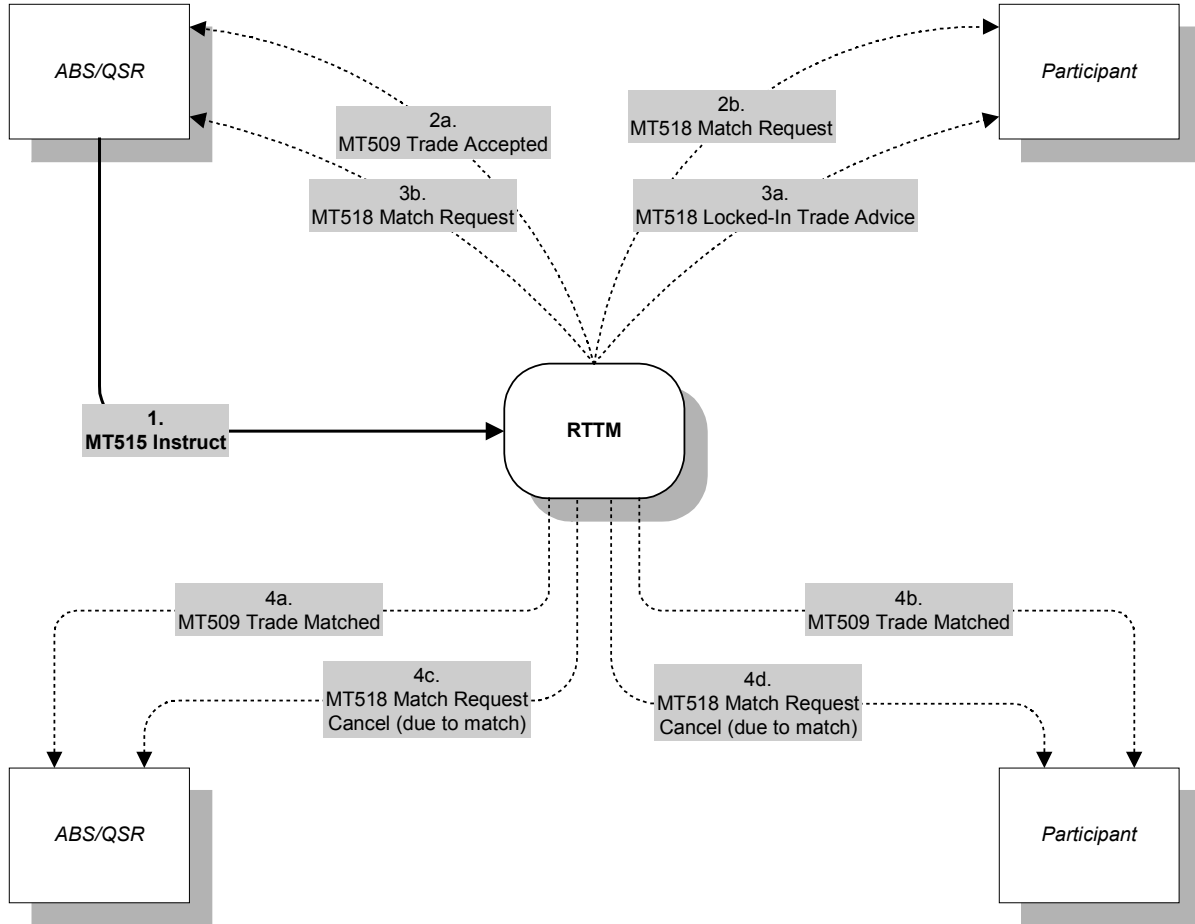
**4. Syndicate Manager Trade - Bilaterally Matched Intraday by Syndicate Buy Side**



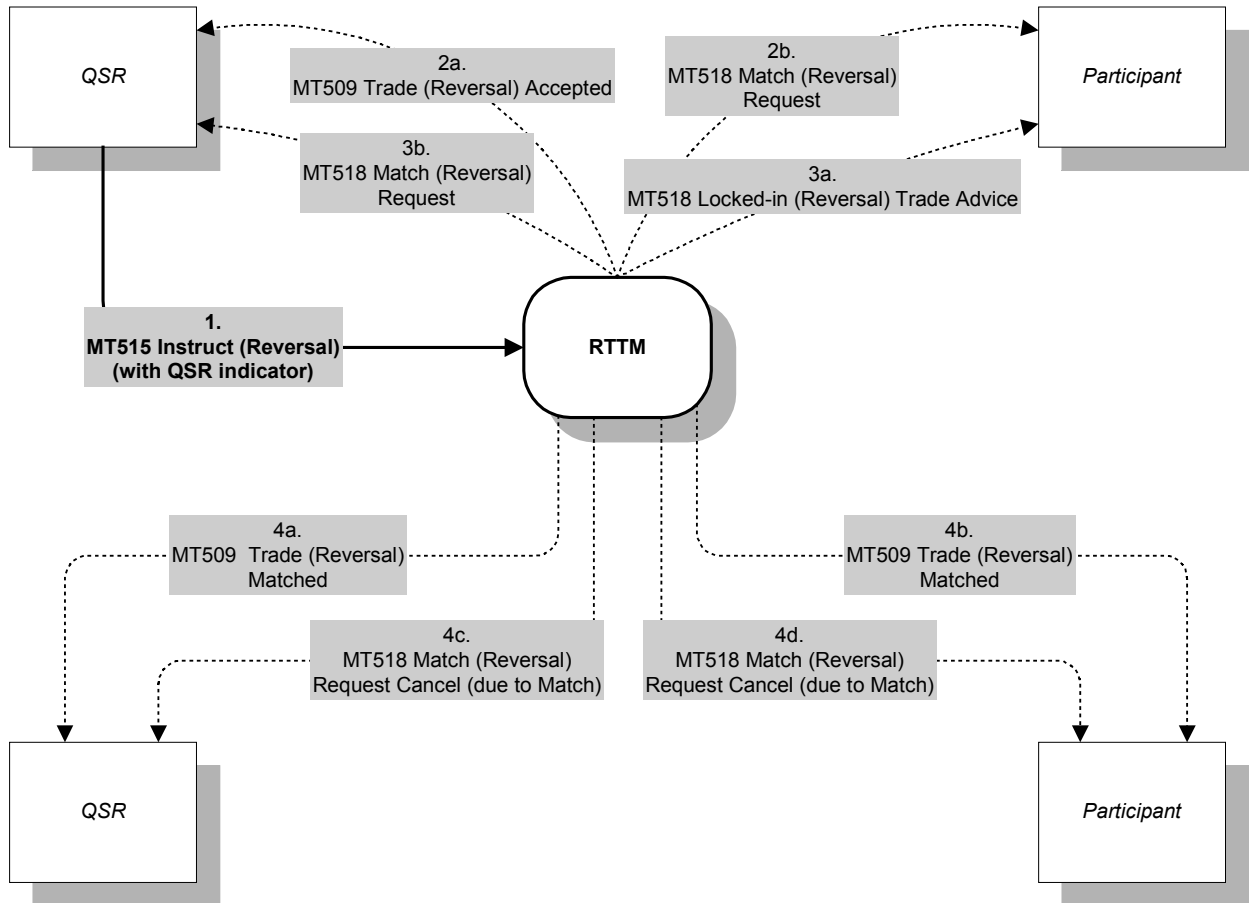
**5. Syndicate Takedown DKed by Contraparty**



**6. ABS/QSR Trade Submission - Automatically Marked as Matched at End-of-Day**



**7. Unilateral Reversal of a QSR Trade (by QSR After Initial Trade Matching)**



# Appendix C

## Timeframes for Trade Related Actions on RTTM<sup>16</sup>

Submission Type	Action	Regular Way (RW)	When-issued (WI)
Bilateral	Trade Entry	Trades can be entered at any time to the RTTM system on or after Trade Date.	New Issue trades can be entered any time to the RTTM system on or after Trade Date through end-of-day Distribution Date -1.
	Cancel	Cancels <sup>17</sup> (OSDs) of Trades may only be entered to the RTTM system targeting Trades that are unmatched. For current T + 3 settlement, it has been determined that Trades will remain in an unmatched state on the system through end-of-day Submission Date + 2, at which time they will be deleted from the RTTM system.	Cancels (OSDs) of Trades may only be entered to the RTTM system targeting Trades that are unmatched and have not yet been sent to Settlement. For current T + 3 settlement, it has been determined that WI Trades will remain in an unmatched state on the system through the earlier of end-of-day Submission Date + 2 or Settlement (Distribution) Date -1, at which time they will be deleted from the RTTM system.
	Modify	Modifies of x-ref on Trades can take place at any time before end-of-day anticipated Actual Settlement Date. Modifies of information other than x-ref on Trades can only be performed on trade Submission Date where the trade is unmatched.	Modifies of x-ref on WI Trades can take place at any time before end-of-day Settlement (Distribution) -1. Modifies of information other than x-ref on Trades can only be performed on trade Submission Date where the trade is unmatched.
	Reversal	Entry of Reversals (Withholds) to the system follows the same rules as initial trade entry.	New Issue trades can be entered any time to the RTTM system on or after Trade Date through end-of-day Distribution Date -1.
	DK	DKs of Trades may be entered to RTTM by the contraparty where a trade is available for matching.	Same as RW.
	Sent to Settlement	Regular Way Bilateral Trades will be sent to Settlement immediately upon matching.	Matched When-issued Bilateral Trades will be sent to Settlement at end-of-day Settlement (Distribution) Date -2, or at the latest, at end-of-day Settlement (Distribution) Date - 1, if matched on that day.

<sup>16</sup> Timeframes reflected in Appendix C represent RTTM requirements and in no way are intended to represent regulatory requirements for trade submission.

<sup>17</sup> Timeframe logic for Cancel, Modify, DK and 'Sent to Settlement' actions applies to both Trades as well as Reversals in all instances.

## Timeframes for Trade Related Actions on RTTM

Submission Type	Action	Regular Way (RW)	When-issued (WI) <sup>18</sup>
ABS	Trade Entry	ABS trades (or trades <i>targeting</i> ABS trades) can be entered to the RTTM system only on Trade Date.	Same as RW.
	Cancel	N/A for ABS RW trades. RW Trades <i>targeting</i> ABS Trades may be canceled on Trade (Submission) Date where the Trade is not yet matched.	ABS WI Trades and Trades <i>targeting</i> ABS Trades may be canceled on Trade (Submission) Date where the Trade is not yet matched and has not yet gone to Settlement.
	Modify	Modifies of x-ref on Trades can take place at any time before end-of-day anticipated Actual Settlement Date. Modifies of information other than x-ref on RW ABS Trades will not be supported as these Trades are sent to Settlement upon receipt by RTTM. Modifies of information other than x-ref on ABS Trades <i>targeting</i> ABS trades can be performed on Submission Date where the Trade is unmatched and not yet sent to Settlement.	Modifies of x-ref on Trades can take place at any time before end-of-day Settlement (Distribution) Date – 1. Modifies of information other than x-ref on ABS Trades and Trades <i>targeting</i> ABS Trades can only be performed on Submission Date where the trade is not matched and not yet sent to Settlement.
	Reversal	Entry of ABS Reversals follows the same rules as initial trade entry.	Same as RW.
	DK	DKs (informational only) may be submitted by the contraparty against ABS Trades on Trade Date where the trade has not been marked as matched in the RTTM system. DKs may be submitted against Trades <i>targeting</i> ABS trades on Trade Date only where the trade is not matched.	Same as RW.
	Sent to Settlement	ABS RW Trades are sent to Settlement upon receipt by RTTM.	ABS WI Trades will be sent to Settlement at end-of-day Settlement (Distribution) Date-2, or at the latest, at end-of-day Settlement (Distribution) Date-1, if matched on that day.

<sup>18</sup> When-issued processing is not currently utilized for QSR or ABS trades.

## Timeframes for Trade Related Actions on RTTM

Submission Type	Action	Regular Way (RW)	When-issued (WI)*
QSR	Trade Entry	QSR Trades (and trades <b>targeting</b> QSR trades) may be entered to RTTM on Trade Date, or at the latest, Trade Date + 1.	Same as RW.
	Cancel	N/A for QSR RW trades. Trades <b>targeting</b> QSR Trades may be canceled on RTTM through end-of-day Trade Date + 1 where the Trade is not yet matched and has not yet gone to Settlement.	QSR WI Trades may be canceled on Submission Date where the Trade is not yet matched and has not yet gone to Settlement. Trades <b>targeting</b> QSR WI Trades may be canceled through end-of-day Trade Date + 1 where the Trade is not yet matched and has not yet gone to Settlement.
	Modify	Modifies of x-ref on QSR Trades and Trades <b>targeting</b> QSR Trades can take place at any time before end-of-day anticipated Actual Settlement Date. Modifies of information other than x-ref on RW QSR Trades will not be supported as these Trades are sent to Settlement upon receipt by RTTM. Modifies of information other than x-ref on Trades <b>targeting</b> QSR trades can be performed on Submission Date where the Trade is unmatched and not yet sent to Settlement.	Modifies of x-ref on WI QSR Trades can take place at any time before end-of-day Settlement (Distribution) Date - 1. Modifies of information other than x-ref on WI QSR Trades and Trades <b>targeting</b> QSR Trades can be performed only on trade Submission Date where the trade has not been marked as matched by RTTM and has not yet been sent to Settlement.
	Reversal	QSR Reversals and Reversal trades <b>targeting</b> QSR Reversals may be submitted to the RTTM system through end-of-day Trade Date + 1.	Same as RW.
	DK	DKs (informational only) may be submitted by the contraparty against QSR Trades on Trade Submission Date where the trade has not been marked as matched in the RTTM system. DKs may be submitted against trades <b>targeting</b> QSR trades through end-of-day Trade Date + 1, where the trade has not been marked as matched in RTTM.	Same as RW.
	Sent to Settlement	QSR RW Trades are sent to Settlement upon receipt by RTTM.	QSR New Issue Trades will be sent to Settlement on the night of Settlement (Distribution) Date-2, or, at the latest, at end-of-day Settlement (Distribution) Date-1, if received on that day.

\* When-issued processing is not currently utilized for QSR or ABS trades.

## Timeframes for Trade Related Actions on RTTM

Submission Type	Action	Regular Way (RW)	When-issued (WI)
<b>Syndicate</b>			
	Trade Entry	N/A	Syndicate Trades and trades <b>targeting</b> Syndicate Trades may be entered to the RTTM system through end-of-day Settlement (Distribution) Date - 1.
	Cancel	N/A	Syndicate Trades and Trades <b>targeting</b> Syndicate Trades may be cancelled (OSD) on the RTTM system through the earlier of end-of-day Submission Date + 2 or Settlement (Distribution) Date - 1, where the trade has not been marked as matched in the RTTM system and has not yet been sent to Settlement.
	Modify	N/A	Modifies of Syndicate Trades or Trades <b>targeting</b> Syndicate Trades, for x-ref can take place at any time before end-of-day on the Settlement (Distribution) Date - 1. Modifies of Syndicate Trades and Trades <b>targeting</b> Syndicate Trades for information other than x-ref can only be performed on Submission Date where the trade has not been marked as matched in the RTTM system, and has not yet been sent to Settlement.
	Reversal	N/A	Reversals (Withholds) of Syndicate Trades can be submitted unilaterally by the Syndicate Manager through end-of-day Settlement (Distribution) Date - 1. Reversals (Withholds) of trades <b>targeting</b> Syndicate Trades can be submitted through end-of-day Settlement (Distribution) Date - 1.
	DK	N/A	DKs (OSDs) may be submitted by the contraparty against Syndicate Trades and Trades <b>targeting</b> Syndicate Trades through the earlier of end-of-day Submission Date + 2, or Settlement (Distribution) Date - 1, where the trade has not been marked as matched in the RTTM system.
	Sent to Settlement	N/A	Matched Syndicate Trades will be sent to Settlement at end-of-day Settlement (Distribution) Date - 2 or, at the latest, at end-of-day Settlement (Distribution) Date - 1, if the Trades are matched on that day.

# Appendix D

## RTTM System Matching Timing Rules

Submission Type	Action	Regular Way (RW)	When-issued (WI)
Bilateral	Trade Entry	Bilateral RW Trades, not in DK status, are available for matching through end-of-day Submission Date + 2.	Bilateral WI trades, not in pending, memo, or DK status, are available for matching through the earlier of end-of-day Submission Date + 2 or end-of-day Settlement (Distribution) Date - 1.
	Reversal	Bilateral Reversals (Withholds), not in DK status, are available for matching through Submission Date + 2.	Bilateral WI Reversals (Withholds), not in pending, memo, or DK status, are available for matching through the earlier of end-of-day Submission Date + 2 or end-of-day Settlement (Distribution) Date - 1.

## RTTM System Matching Timing Rules

Submission Type	Action	Regular Way (RW)	When-issued (WI) <sup>19</sup>
ABS	Trade Entry	<p>ABS RW trades, while considered compared, are available for matching (for reconciliation purposes) through end-of-day Trade (Submission) Date.</p> <p>Trades <b>targeting</b> ABS RW trades, not in DK status, are available for matching through end-of-day Trade (Submission) Date.</p>	<p>ABS WI trades, not in pending or memo status, while considered compared, are available for matching (for reconciliation purposes) through end-of-day Trade (Submission) Date.</p> <p>WI Trades <b>targeting</b> ABS WI trades not in DK, pending, or memo status, are available for matching through end-of-day Trade (Submission) Date.</p>
	Reversal	<p>Should the NYSE determine that it will submit Reversals, ABS RW Reversals, while considered compared, will be available for matching (for reconciliation purposes) through end-of-day Trade (Submission) Date.</p> <p>RW Reversal trades, <b>targeting</b> ABS Reversals, not in DK status, are available for matching through end-of-day Trade (Submission) Date.</p>	<p>ABS WI Reversals, not in pending or memo status, while considered compared, are available for matching (for reconciliation purposes) through end-of-day Trade (Submission) Date.</p> <p>WI Reversal trades <b>targeting</b> ABS reversals not in DK, pending, or memo status, are available for matching through end-of-day Trade (Submission) Date.</p>

<sup>19</sup> When-issued processing is not currently utilized for QSR or ABS trades.

## RTTM System Matching Timing Rules

Submission Type	Action	Regular Way (RW)	When-issued (WI)*
QSR	Trade Entry	<p>QSR RW trades, while considered compared, are available for matching (for reconciliation purposes) through end-of-day Submission Date.</p> <p>Trades <b>targeting</b> QSR trades, not in DK status, are available for matching through end-of-day Trade Date + 1.</p>	<p>QSR WI trades, not in pending or memo status, while considered compared, are available for matching (for reconciliation purposes) through end-of-day Submission Date.</p> <p>WI Trades <b>targeting</b> QSR WI trades, not in DK, pending, or memo status, are available for matching through the earlier of end-of-day Trade Date + 1 or Settlement (Distribution) Date - 1.</p>
	Reversal	<p>QSR RW Reversals, while considered compared, are available for matching (for reconciliation purposes) through end-of-day Submission Date.</p> <p>RW Reversal Trades, <b>targeting</b> QSR Reversals, not in DK status are available for matching through end-of-day Trade Date + 1.</p>	<p>QSR WI Reversals, not in pending or memo status, while considered compared, are available for matching (for reconciliation purposes) through end-of-day Submission Date.</p> <p>WI Reversal trades <b>targeting</b> QSR Reversals, not in DK, pending or memo status, are available for matching through the earlier of end-of-day Trade Date + 1 or Settlement (Distribution) Date - 1.</p>

\* When-issued processing is not currently utilized for QSR or ABS trades.  
*Appendix D, RTTM System Matching Timing Rules*

## RTTM System Matching Timing Rules

Submission Type	Action	Regular Way (RW)	When-issued (WI)
Syndicate	Trade Entry	N/A	<p>Syndicate Trades, not in pending, memo or DK status, are available for matching through the earlier of end-of-day Submission Date + 2 or end-of-day Settlement (Distribution) Date - 1.</p> <p>Trades <b>targeting</b> Syndicate Trades, not in pending, memo, or DK status, are available for matching through the earlier of end-of-day Submission Date + 2, or end-of-day Settlement (Distribution) Date - 1.</p>
	Reversal	N/A	<p>Syndicate Reversals, not in pending, memo or DK status, are available for matching through the earlier of end-of-day Submission Date + 2 or end-of-day Settlement (Distribution) Date - 1.</p> <p>Reversal trades <b>targeting</b> Syndicate Reversals, not in pending, memo, or DK status, are available for matching through the earlier of end-of-day Submission Date + 2 or end-of-day Settlement (Distribution) Date - 1.</p>

# Appendix E

## RTTM System Trade/Reversal Transaction Purge Rules<sup>20</sup>

Submission Type	End-of-Day Status	Regular Way (RW)	When-issued (WI)
<b>Bilateral</b>			
	Unmatched-Pending Matching	End-of-day Submission Date + 2.	Earlier of end-of-day Submission Date + 2 or Distribution Date – 1.
	Unmatched-DK Status	End-of-day on DK Date.	End-of-day on DK Date.
	Unmatched-Pending Status	N/A	End-of-day on Submission Date.
	Unmatched-Memo Status	N/A	Earlier of end-of-day on Submission Date + 2 or Distribution Date – 1.
	Cancelled Trade	End-of-day Cancellation Date.	End-of-day Cancellation Date.
	Matched Trade	End-of-day Anticipated Actual Settlement Date.	End-of-day Anticipated Distribution Date.

<sup>20</sup> Purge rules relate to both Trades and Reversals.

## RTTM System Trade/Reversal Transaction Purge Rules

Submission Type	End-of-Day Status	Regular Way (RW)	When-issued (WI) <sup>21</sup>
ABS	Unmatched-Pending Matching	N/A for ABS trades. End-of-day Trade (submission) Date for trades <b>targeting</b> ABS trades.	Same as RW.
	Unmatched-DK Status	N/A for ABS trades. End-of-day DK Date for trades <b>targeting</b> ABS trades.	Same as RW.
	Unmatched-Pending Status	N/A	End-of-day on Submission Date for both ABS WI Trades and Trades <b>targeting</b> ABS trades.
	Unmatched-Memo Status	N/A	For ABS WI Trades and Trades <b>targeting</b> ABS trades, the earlier of end-of-day Submission Date + 2 or Distribution Date – 1.
	Cancelled Trade	N/A for ABS Trades. End-of-day Trade/Cancellation Date for trades <b>targeting</b> ABS trades.	End-of-day Trade/Cancellation Date for both ABS trades and trades <b>targeting</b> ABS trades.
	Matched Trade	End-of-day Anticipated Actual Settlement Date for both ABS trades and trades <b>targeting</b> ABS trades.	End-of-day Anticipated Distribution Date for both ABS WI trades and trades <b>targeting</b> ABS trades.

<sup>21</sup> When-issued processing is not currently utilized for QSR or ABS trades.  
*Appendix E, RTTM System Trade/Reversal Transaction Purge Rules*

## RTTM System Trade/Reversal Transaction Purge Rules

Submission Type	End-of-Day Status	Regular Way (RW)	When-issued (WI)*
<b>QSR</b>			
	Unmatched-Pending Matching	N/A for QSR trades. End-of-day Trade Date + 1 for trades <b>targeting</b> QSR trades.	N/A for QSR trades. The earlier of end-of-day Trade Date + 1 or Distribution Date - 1 for trades <b>targeting</b> QSR trades.
	Unmatched-DK Status	N/A for QSR trades. End-of-day DK Date for trades <b>targeting</b> QSR trades.	Same as RW.
	Unmatched-Pending Status	N/A	End-of-day on Submission Date for QSR trades and trades <b>targeting</b> QSR trades.
	Unmatched-Memo Status	N/A	The earlier of end-of-day Submission Date + 2 or Distribution Date - 1 for both for QSR trades and trades <b>targeting</b> QSR trades.
	Cancelled Trade	N/A for QSR RW trades. End-of-day Cancellation Date for Trades <b>targeting</b> QSR trades.	End-of-day Cancellation Date for both QSR Trades and trades <b>targeting</b> QSR trades.
	Matched Trade	End-of-day Anticipated Actual Settlement Date for both QSR trades and trades <b>targeting</b> QSR trades.	End-of-day Anticipated Distribution Date for both QSR trades and trades <b>targeting</b> QSR trades.

\* When-issued processing is not currently utilized for QSR or ABS trades.  
Appendix E, RTTM System Trade/Reversal Transaction Purge Rules

## RTTM System Trade/Reversal Transaction Purge Rules

Submission Type	End-of-Day Status	Regular Way (RW)	When-issued (WI)
<b>Syndicate</b>			
	Unmatched-Pending Matching	N/A	N/A for Syndicate Trades. The earlier of Submission Date + 2 or Distribution Date - 1 for Trades <b>targeting</b> Syndicate Trades.
	Unmatched-DK Status	N/A	End-of-day DK Date for both Syndicate Trades and Trades <b>targeting</b> Syndicate Trades.
	Unmatched-Pending Status	N/A	End-of-day Submission Date for both Syndicate Trades and Trades <b>targeting</b> Syndicate Trades.
	Unmatched-Memo Status	N/A	The earlier of end-of-day Submission Date + 2 or Distribution Date - 1 for both Syndicate Trades and Trades <b>targeting</b> Syndicate Trades.
	Cancelled Trade	N/A	End-of-day Cancellation Date for both Syndicate Trades and Trades <b>targeting</b> Syndicate Trades.
	Matched Trade	N/A	End-of-day Anticipated Distribution Date or both Syndicate Trades and Trades <b>targeting</b> Syndicate Trades.

We encourage participants to comment on any and all aspects of this document.  
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